SPECIAL 56-PAGE SPORTS WATCH SECTION

A CAZINE OF FINE WATCHES

Calendar Watches

PATEK PHILIPPE, IWC, OMEGA, AND 6 MORE

KISS DRUMMER

Eric Singer

TALKS WATCHES

WATCH TESTS

CARL F. BUCHERER, MÜHLE, ALPINA



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Test Fest

atch tests: You love 'em, we've got 'em, and in this issue we've got a bunch of them. Our cover story, "Sand Dude," is a test of Breitling's new, ultra-water-resistant (1,500 meters) Superocean. It's the first of a doublefeature on Breitling. The companion piece takes us inside Breitling Chronométrie where Breitling manufactures its Caliber B01 chronograph movement.

The Breitling stories are part of our large special section on sports watches. We test two other sports watches in the section, the Alpina Avalanche Manufacture Regulator and the Mühle-

Glashütte S.A.R. Flieger Chrono-

Elsewhere in the issue, we put through its paces the Carl F. Bucherer Patravi EvoTec DayDate, the first watch to contain CFB's first in-house movement, Caliber CFB A1001, with a peripheral rotor.

And, as the late, great pitchman Billy Mays used to say, "But that's not all!" For the same \$7.95 you paid for the mag, we're throwing in, at no extra charge, a review of eight watches (count 'em, eight: Patek Philippe, Audemars Piguet, Girard-Perregaux, **IWC** Schaffhausen, Ulvsse Nardin, Omega, Breitling, and Svend Andersen) featuring the most popular complication of all, the calendar function, in various executions (perpetual, annual, secular, etc.).

In addition to the tests, our sports watch section consists of a series of articles written by WatchTime managing editor Mark Bernardo, who traveled two-thirds of the globe to get them. He went to Japan for a rare look at the watchmaking operations of sportswatch power Casio. You'll see in his article "Casio Confidential" that there's a lot more to Casio than just G-Shocks these days. He went to the Tuscany region of Italy to visit Anonimo for a look at a horological craft that doesn't usually get much attention: case-making. "Florencebased Anonimo takes great pride in its cases the way Switzerland's haute horlogerie houses take pride in their complicated movements," Bernardo writes in his article, "A Case Study in Tuscany." Mercifully, considering how many air miles he had logged, Bernardo was able to stay stateside for the other two stories, on Britishbased Bremont and the newcomer Ralf Tech. He interviewed the CEOs of those firms in New York and Miami, respectively.

KISS DRUMMER ERIC SINGER DISPLAYS SUCH WATCH SMARTS, I WANTED TO SIGN HIM UP AND PUT HIM ON THE MASTHEAD.

One of the great things about the watch addiction is that it can strike anybody. There is no way to know who has it or why. Everybody's story is different — which is why we run connoisseur profiles. Our connoisseur in this issue is Eric Singer, the drummer in the rock band Kiss. Normally we don't do long Q & A interviews with celebrity collectors. Generally, the depth of their watch knowledge doesn't merit it. But Singer's does. He has visited the factories of four watch firms and displays a remarkable range of watch knowledge in the interview. When I finished reading it, I wanted to sign him up and put him on the masthead.

We hope you enjoy the issue. All of us at WatchTime wish all of you dear readers a wonderful holiday season.

> Joe Thompson Editor-in-Chief





Breitling Chronométrie





IWC Da Vinci Perpetual Calendar



Since time immemorial, the course of the moon has been one of the greatest mysteries to mankind.



The Nebra sky disk, a famous bronze-age artefact, ranks among the oldest known depictions of the heavenly canopy. It was found less than 200 kilometres from Glashütte.

© Bureau of National Landmarks and Archeology, Saxony-Anhalt, Juraj Lipták

O ur ancestors performed complicated rituals to measure the course of time based on the movement of celestial bodies. Today, a single glance at the SAXONIA ANNUAL CALENDAR is all it takes to tell the time with utmost accuracy – from the second, date, and weekday to the lunar phase.

Despite the numerous useful complications, the dial is so lucidly configured that the ingenious technology beneath it might easily be forgotten. The patented outsize date only needs to be corrected once a year, on 1 March. The correction of the moon-phase display can be left to future generations

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because mathematically speaking, 122 years will elapse before it deviates by one day. The assembly of the self-winding movement with its 476 parts is the complicated ritual of contemporary time measurement, again and again celebrated by master watchmakers with unprecedented precision.

165 years ago, F. A. Lange brought the collective know-how of his era's best watchmakers to Glashütte – and the firm determination to systematically enhance it with useful innovations. It is with pride that we continue in this spirit.

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18K ROSE GOLD 42MM MODEL. ULTRATHIN 5.35MM CASE.

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Gucci sells men shoes, clothes and leather goods. New CEO Patrizio di Marco wants to add watches to the list.

THE VISIONARY'S WATCH

No other watch is engineered quite like a Rolex. The Milgauss, introduced in 1956, was designed to meet the demands of the scientific community and is capable of withstanding magnetic fields of up to 1,000 gauss. After rigorous testing by CERN engineers, it earned a reputation as the perfect magnetic shield. Today's Milgauss features a Parachrom hairspring that provides additional protection from the effects of magnetism. The Milgauss, exclusively available in 904L steel, is presented here in its Anniversary Edition with a unique green sapphire crystal.











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ON THE COVER: The newly refurbished Superocean from Breitling. Photo by Nik Schölzel

IWC. The future of watchmaking since 1868.



Portuguese Perpetual Calendar. Ref. 5023: One thing at IWC always remains the same: the desire to get even better. Here is one of the finest examples, with the largest automatic movement manufactured by IWC, Pellaton winding and a seven-day power reserve. The perpetual calendar shows the date and moon phase and is mechanically programmed until the year 2499. In short: a watch that has already written the future. *Mechanical IWC-manufactured movement | Pellaton automatic winding system | 7-day power reserve with display | Perpetual calendar | Perpetual moon phase display | Antireflective sapphire glass | Sapphire-glass back cover | Water-resistant 3 bar | 18 ct red gold | IWC. Engineered for men.*

IWC SCHAFFHAUSEN SINCE 1868





THE MAGAZINE OF FINE WATCHES

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FOUNDED IN 1755, ON AN ISLAND IN LAKE GENEVA. AND STILL THERE.



April 1819. François Constantin takes responsibility for the worldwide business expansion of Vacheron Constantin. During a business trip to Italy, this visionary man coined the phrase which would become the company motto in a letter addressed to the manufacture: "...do better if possible, and that is always possible ...".

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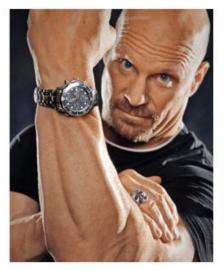


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Reverse view of TAG Heuer's Monaco V4 showing the linear winding weight in the center



Stone Cold Steve Austin

WatchTime welcomes correspondence from readers. Send comments to editor-in-chief Joe Thompson at 274 Madison Avenue, Suite 705, New York, NY 10016 or via e-mail to jthompson@watchtime. com. Please include your full name, city and state, and country (if outside the United States). Letters may be edited for length or clarity. Due to the volume of correspondence, WatchTime cannot acknowledge all the letters it receives. However, each one is read in full.

"YOU CAN'T CALL THE OSCILLATING WEIGHT IN THE TAG HEUER MONACO V4 A ROTOR.

A ROTOR MUST ROTATE."

A NON-ROTATING ROTOR?

As a card-carrying accuracy freak, I haven't had a conventional mechanical watch for many years and have never ventured into the heady latitudes of A. Lange & Söhne products and their like. So I was stunned by many of the illustrations in the Lange supplement that came with my October issue of *WatchTime*. The individual components, as well as the assembled movements, are exquisite. I don't pretend to be able to follow the sometimes rather cryptic explanations of some of the functions, but even the line drawings are things of beauty, some of them worthy of being framed and hung on my walls.

I can't imagine writing to you without a quarrel of some sort, so let me pick on your article about the TAG Heuer Monaco V4 in that issue ["Belt Titan"]. You can't really call the oscillating weight used for the automatic winding mechanism a "rotor." By definition, a rotor must rotate, while your own description says the weight "moves linearly"! I've never been aware of the movement of the rotating winder weights in any of the automatics I used to wear, or in the Seiko Spring Drive I wear today, but I wonder if the wearer can detect that oscillating movement of the winder weight in the V4.

Fran Oldham St. Louis, MO

We are glad you enjoyed the A. Lange & Söhne supplement. It went to all WatchTime subscribers as a bonus for subscribing to the magazine. The supplement was not produced by WatchTime, but by a Geneva-based publishing firm in collaboration with Lange. The illustrations you refer to are Lange's.

Regarding the "rotor" issue, I must point out that the word "rotor" appears only once in the Monaco V4 test article — in a caption on page 140. The author, Jens Koch, refers numerous times in the piece to a "winding bar," "linear winding weight," and "linear oscillating winding weight." At no point does he use the word "rotor." That said, we did indeed call it a rotor in the caption, which was written by a copy editor. As you note, we shouldn't have.

As for your question about whether you can feel the motion of the winding weight on the

wrist, I asked Jens Koch, who wore the watch for the test, and he says that you can. It is, he says, "quite notable but not annoying on the wrist. It's different from the Valjoux 7750 but the vibrations have about the same intensity."

FAMILY VALUES

Thank you for Mark Bernardo's great article on Stone Cold Steve Austin in the August issue ["Wrestling With Time"]. My son is a huge WWE fan, and he was excited to see that one of his guys could also share in one of my passions — watches! What a way to bring us together! I also appreciated that Stone Cold is a bit more of a regular guy. I am jealous of the watch collectors you usually feature in the magazine who have lots of money to buy whatever they want. Sometimes I wish I had that problem.

Randy Lynch Stuttgart, Germany

WHAT'S HE SMOKIN'?

As a watch and cigar lover, I always enjoy Mark Bernardo's Fine Cigars articles. I am a big fan of Miami-made cigars since discovering Ernesto Perez-Carillo's fabulous Wavells in the early '90s. I thoroughly enjoyed Mark's excellent review of the current Miami cigar scene ["Home Fires Burning," October 2010 WatchTime] but had to wonder what he was smoking when he was "watching the sun set over the Atlantic... as I leisurely puffed away the early evening." I live on the water in Sarasota, on the west coast of Florida, and have the privilege of watching the sun set over the Gulf of Mexico every night. Please ask Mark to send me one of his cigars. Maybe I'll be able to see the sun rise over the Gulf!

> Alan Treiman, M.D. Sarasota, FL

Mark Bernardo replies:

I was smoking an Artesanos de Miami Gran Corona Especiale, which should in no way be blamed for my geographical gaffe. How about we replace "watching the sun set" with "watching evening descend," have another smoke and forget it ever happened? Glad you enjoy the column.



The Jules Audemars Perpetual Calendar watch is a masterpiece of miniaturization developed on the basis of the extra-thin self-winding Calibre 2120 and the 2802 module. The entire mechanism is indeed just 4 millimeters thick. Intended to reproduce the intricacies of our calendar by displaying the cadence of the minutes, hours, days, date and months, this complex movement also smoothly handles the irregularity of 30- and 31-day months as well as the leap-year cycle. The calendar module is designed to require no correction before March 1st 2100, a date when the Gregorian calendar will imply an adjustment – exactly the kind of detail true connoisseurs will appreciate.

Pink gold case, brown or silvered dial, applied pink gold hour-markers, pink gold hour and minute hands.



As of July 2011, the sale of watch batteries containing mercury will be illegal in Maine, Connecticut and Rhode Island and unacceptable at Walmart stores everywhere.

t is not widely known among watch producers, sellers and wearers, but within a few months, the sale of the most common type of battery used in quartz watches, silver oxide button cell batteries, as well as the sale of watches containing them, will be banned in three U.S. states: Connecticut, Rhode Island and Maine.

The three New England states have enacted environmental safety laws that ban the sale or distribution of button cell batteries containing mercury and the sale of devices (i.e., watches) powered by mercury-bearing button cell batteries as of July 1, 2011. "It is anticipated that additional states will quickly follow," says Henry Kessler, CEO of Dallas-based Sy Kessler Sales, Inc., the U.S. distributor for Renata batteries. What's more, Kessler says, Walmart, the world's largest retailer, has informed its watch vendors that it wants only mercury-free batteries in the watches that it sells.

Kessler closely monitors state laws affecting the watch-battery business. He is concerned that watch consumers and watch industry professionals are unaware that new laws requiring mercury-free bat-

Countdown to a

Battery Ban

teries in quartz watches are about to go into effect. "The requirement that watch dealers, service technicians and all sellers of watch batteries quickly transition to mercury-free batteries is very newsworthy," he says. "Jewelers in these states, for the most part, are totally unaware of the changes in the law. We have seen panic on the faces of industry members as they come to realize their stock of watches must have their batteries replaced before July 1, 2011. Industry members everywhere who sell into these states directly or indirectly (over the Internet) are affected."

Kessler has been sounding the alarm to raise awareness of the new watch battery regulations, which are the strictest in the world, he says. At the annual convention of the American Watchmakers-Clockmakers Institute in August, Kessler updated members on the latest legal developments in a seminar called "The Evolving Watch Battery." Kessler's interest is more than simply that of a law-abiding citizen. At Baselworld this year Renata Batteries, the Swiss battery maker owned by the Swatch Group, introduced a new line of mercury-free silver oxide batteries in advance of the new U.S. state laws.

"A battery," Kessler says, "is just a pot of chemicals." Standard silver oxide watch batteries are subject to the new regulations because they contain small amounts of mercury. (Lithium batteries contain no mercury and are not subject to the ban.) Silver-oxide cells are the primary batteries used in wristwatches. (According to the National Electric Manufacturers Association, 75 percent of silver oxide batteries are used in watches. Most of the rest go into cameras but you also find them in electronic games, calculators and miniature clocks.) The batteries use silver oxide for the cathode electrode, zinc for the anode electrode and an alkaline solution for the electrolyte. In conventional silver oxide cells, small amounts of mer-



Renata launched a line of mercury-free, silver oxide button cell batteries this year.

cury and lead are added as anti-corrosives. Mercury reduces the buildup of gas generated by the corrosion of zinc.

"Many watch companies and retailers have no idea there are two or three milligrams of mercury added to most silver oxide batteries," Kessler says. That lack of awareness is preventing the industry from making necessary adjustments to comply with the new laws. "As they become aware, the scope of the situation slowly sinks in. They consider how they are tracking incoming product: is it with or without mercury? What will they do with existing stock? What about new purchases? Will the new mercury-free product be as good? How much more will it cost? What happens if we make a mistake and get caught on CNN selling a watch or repair with a battery containing mercury?"

Mercury-free silver oxide watch batteries were introduced in 2005. Japan's Sony produced the first ones, followed by Seiko Instruments Inc. and Hitachi. Germany's Varta Microbattery and Japan's Maxell introduced a few types in 2008. However, the watch industry has not rushed to embrace them. The 0-percentmercury batteries cost more (as much as



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"WHAT HAPPENS IF WE GET CAUGHT ON CNN SELLING A WATCH WITH *A BATTERY CONTAINING* **MERCURY?**"

HENRY KESSLER

25 percent) and in some cases do not last as long as standard silver oxide cells.

The watch industry is likely to pay more attention to mercury-free batteries, Kessler says, as states enact tougher laws and retailers push for greener products. "What started with Connecticut and Maine has grown tremendously. According to the Environmental Protection Agency, 33 states have passed laws, have active bills being considered, or have established regulations or ordinances with the goal of reducing mercury emissions to air, land, and water." He notes that some Walmart stores carry mercury-free watch batteries under the Rayovac, Energizer and Walmart brands.

Some watch companies are getting the anti-mercury message. Switzerland's two



top quartz movement producers, ETA and Ronda, are converting to a 0-percent-mercury power source. "The Swatch Group has made the decision to end the use of mercury-added batteries worldwide in all of its watch brands and service centers," Kessler says. Renata, meanwhile, is the first battery company to offer a full line of "0 percent mercury" batteries in the United States. Concludes Kessler, "Mercury's days in watch batteries are definitely numbered."

Joe Thompson

Top Swiss Chronometer Producers, 2009

	Rank Brand	Certificates
	1. Rolex	607,512
	2. Omega	187,558
	3. Breitling	108,220
	4. TAG Heuer	70,195
	5. Panerai	40,562
	6. Chopard	37,314
	7. Mido	17,730
	8. Ball	15,455
	9. Titoni	10,935
	10. Tissot	6,932
	11. Chanel	5,702
	12. Enicar	5,617
	13. Ebel	4,705
	14. Ulysse Nardin	4,051
	15. Montblanc	3,807
	16. Bulgari	3,712
	17. Concord	3,160
	18. Rado	3,095
	19. Corum	2,740
	20. Bremont	2,478
	21. Porsche Design	2,171
	22. Cattin & Cie	1,681
	23. Carl F. Bucherer	1,588
	24. Numa Jeannin	1,488
	25. Tourneau	1,482
	26. Paul Picot	1,341
l	27. Ernest Borel	1,134
	Source: COSC	

As usual, Rolex, Omega and Breitling led the list of Switzerland's top producers of chronometer watches. The Big Three accounted for 78 percent of all chronometer certificates issued last year. (A watch is designated as a certified chronometer if its movement passes a series of stringent tests administered by COSC.)

The smaller chronometer output reflects major production cutbacks by

Swiss Chronometers Down 27% in

The number of movements submitted for testing to COSC dropped dramatically in 2009 as watch companies cut production in the face of the global recession. After a record number of certificates issued in 2008, the total dropped 27.4 percent last year to 1,160,631, according to data recently released by Switzerland's official chronometer testing agency, COSC (Contrôle Officiel Suisse des Chronomètres). The last time the total was that low was in 2004. The overwhelming majority of movements earning the chronometer designation — 94 percent — were mechanical; the other six percent were quartz.



CONTINUED ON PAGE 34

0.0000000024 HP.



This is all the energy needed to power the completely newly developed Manufacture movement, CFB A1001, from Carl F. Bucherer. It features the first reliably functioning peripherally positioned rotor and associates perfect aesthetics and progressive technology. It was designed on the basis of the holistic "Evolution Technology" Manufacture Concept, by which Carl F. Bucherer goes its own way with the development of movements and mechanisms, challenging the existing and striving for more intelligent solutions. A mechanical microcosm which is housed in a perfect environment, thanks to the unmistakably distinctive design of the Patravi EvoTec DayDate.

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CONTINUED FROM PAGE 32

Rolex, Omega and Breitling. Because Breitling produces only chronometer watches, and nearly all Rolex-brand watches are chronometers, the COSC data is a good indicator of their output for the year. The number of COSC certificates issued to Breitling last year was 108,220, a 55% drop from 2008. Omega's total of 187,558 was down 50% from 2008. Rolex's total of 607,512 was down 21% from the previous year.

Still, Rolex remains Switzerland's undisputed chronometer king, a position it has held for decades. More than half of all COSC chronometer certificates go to Rolex.

TAG Heuer moved up one position into fourth place in the chronometer ranking thanks to a chronometer surge last year. The 70,195 certificates issued to TAG is nearly twice its 2008 total of 35,429. Rounding out the top five producers was Panerai, whose 40,562 total was down about 6,000 from the previous year.

The rest of the top 10 chronometer producers — Chopard, Mido, Ball, Titoni and Tissot — increased their number of certificates last year. Ball, Titoni, and Tissot moved into the top 10 ranking for the first time.

A total of 27 Swiss brands produced more than 1,000 certified chronometer

watches last year, according to COSC.

A comparison of the 2009 data versus 2008 shows that four firms made big jumps in the ranking. Ball moved up seven positions to #8. Over the past two years, its chronometer production has jumped from 2,105 to 15,455. Titoni moved up eight positions into the #9 spot. Montblanc jumped seven spots into 15th place. And Bremont moved up six spots into #20.

Several brands headed the other way. Movado ranked #18 in 2008, but was not on the 2009 list. Ulysse Nardin dropped six spots to #14. Corum moved down eight spots to #19.

Morf Moves to Hanhart

Thomas Morf, who led the launch of Carl F. Bucherer as a global watch brand in 2001, has joined Hanhart AG as CEO effective October 1. Morf left his position as CEO of Bucherer Montres SA in May.

Hanhart was founded in Diessenhofen, Switzerland, near Schaffhausen, in 1882 by Adolf Hanhart. It became a German brand in 1902 when he moved operations to Schwenningen, Germany in the Black Forest. Later the firm opened a second factory, in Gütenbach, Germany. Hanhart was best known as a producer of pocketwatches, wristwatches and stopwatches for sports timing and industrial applications.

Hanhart AG is the Swiss subsidiary of A. Hanhart GmbH & Co. KG in Gütenbach. It was founded by private entrepre-

neurs in January 2008 in Diessenhofen, the company's original home town, as the international sales and marketing arm of the Hanhart Group. Gütenbach in Germany remains its production center.

Morf takes the reins as head of the Swiss wing of the group as part of a shift in shareholding at Hanhart AG. Switzerland's Gaydoul Group is now the majority owner of Hanhart AG. Gaydoul specializes in investments in medium-sized consumer goods companies in Switzerland, Germany and Austria. Morf is also a shareholder. "With its fascinating and traceable brand history, high technical expertise and consistent focus on instrument watches, Hanhart is a pearl among watch manufacturers and has great potential internationally," Morf said in a statement.

Hanhart's leader model is Primus, a collection of mechanical chronographs that Hanhart touts as "German engineered,

Swiss made." Hanhart's primary distribution is in the Swiss and German markets. Look for Morf to expand Hanhart's reach.



Thomas Morf



Hanhart Primus Pilot's Chronograph



Other Executive Shifts

Carl F. Bucherer taps Moeri

Sascha Moeri was appointed CEO of Bucherer Montres S.A., the Lucerne-based maker of Carl F. Bucherer watches, effective November 22. He replaces Thomas Morf. Moeri had been vice president of Milus International in Bienne, Switzerland since 2002. Prior to that, he worked at the Swatch Group and Michel Jordi.

New CEO for Lange & Söhne

A. Lange & Söhne has appointed Wilhelm Schmid as CEO effective January 2011. German-born Schmid, 47, comes to Lange, based in Glashütte, Germany, from BMW, where he held positions in marketing and sales for the past eight years. Since 2007, he has been responsible for BMW sales and marketing in South Africa. Schmid was hired by Jérôme Lambert, the CEO of Switzerland's Jaeger-LeCoultre, who is chairman of A. Lange & Söhne.

Van der Kallen heads van der Klaauw

Thomas van der Kallen has joined the firm of Christiaan van der Klaauw Astronomical Watches in Joure, the Netherlands, as president, effective September 1. From 2005 to 2009, van der Kallen, 47, was CEO of Ebel in La Chaux-de-Fonds, Switzerland. Prior to that, he held senior management positions in the Richemont Group in different countries, including the United States.

At van der Klaauw, the Netherlandsborn van der Kallen will be responsible for product development, marketing and sales. Christiaan van der Klaauw began making clocks in 1974. Later he began to produce astronomical wristwatches. "Christiaan van der Klaauw is the only watchmaker in the world specializing in astronomical watches," van der Kallen said in a statement.

The van der Klaauw firm has focused its sales efforts mostly on the Dutch market, van der Kallen said. He intends to launch the brand internationally at a limited number of retailers in mature markets.

New position for Matthias Schuler

Matthias Schuler, the former COO of IWC Schaffhausen who took over as president of Roger Dubuis S.A. in Geneva in 2008, has taken a new position within the Richemont Group, which owns Roger Dubuis. He is now head of the shared services department of Richemont's Geneva-based Specialty Watch division, according to European press reports. He is responsible for coordinating various back-office operations involving all of Richemont's watch brands. Georges Kern, CEO of IWC Schaffhausen, who oversees Roger Dubuis and to whom Schuler reported, will take over responsibility for Roger Dubuis for now, according to the press reports.







From left to right: Thomas van der Kallen with a van der Klaauw watch, Matthias Schuler, Sascha Moeri



Baselworld Beckons

It won't be long before Baselworld, that annual week-long watch fest on the Rhine, once again opens its doors to watch buyers, watch sellers and watch enthusiasts from around the world. The fair will take place from March 24 through March 31 in its longtime venue, the Messeplatz fairgrounds in Basel, Switzerland. Unlike most watch shows, which are open only to the trade, Baselworld admits the public, too.

The last edition of Baselworld attracted 100,700 visitors and 1,915 exhibitors, consisting of both watch and jewelry companies. The watch exhibitors, who occupy more than half of the fair's floor space, many occupying giant, multi-story booths, range from mass-market companies like Timex to high-end ones such as Patek Philippe and Rolex.

Baselworld is a bellwether of watch trends and a barometer of the economic climate. For that reason, it gets more press coverage than any other event in the watch world — each year it attracts thousands of reporters and editors (2,900 at the latest fair).

The fair is open from 9 a.m. to 6 p.m. every day but the last, when it closes at 4 p.m. A one-day pass is 60 Swiss francs (about \$63); an eight-day pass SF150 (about \$157). Anyone thinking about going to Baselworld will find helpful information at www.baselworld.com: details about the event and venue, travel, lodging (probably in a nearby town rather than in bursting-at-the-seams Basel, where hotel rooms are nearly impossible to get during the fair) and various services available for visitors.

1860 — 1916 — 1969 — 2010 —





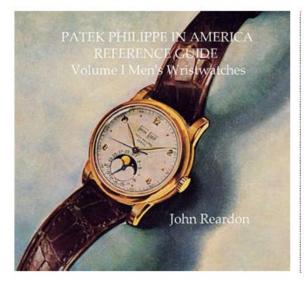
1860 Edouard Heuer founded his workshop in the Swiss Jura.

1916 First mechanical stopwatch accurate to 1/100th of a second.

1969 First automatic chronograph.

2010 TAG Heuer CARRERA Calibre 16 Day Date.





New Book for Patek Lovers

There's a new reference source for Patek Philippe fans: a large-format (11-inch-by-13-inch), 199-page hardcover book with photos of about 1,000 Patek men's wristwatches and pocketwatches offered on the American market from the 1930s to the 1990s. Under each photo is printed the watch's reference number, caliber name, case dimensions, case material and decade of production. There is also a list of caliber numbers and the years in which the caliber was manufactured. The book is called the *Patek Philippe in America Reference Guide*, Volume I (Cefari Publishing, \$295 plus shipping and handling). Volume II, which will come out later, will be dedicated to women's watches.

The book was compiled by John Reardon, a former sales manager at Patek Philippe's U.S. subsidiary, the Henri Stern Watch Agency, who is now the director of vintage and estate watches at Betteridge Jewelers in Greenwich, CT. Reardon's first book about Patek Philippe, entitled *Patek Philippe in America: Marketing the World's Foremost Watch*, also published by Cefari, came out two years ago. Like that book, this new one is a limited edition of 1,500 copies. It is available at www.patekinamerica.com.

On Our Web Site

Here is a small sampling of the multitude of watch articles you'll find at www.watchtime.com:

- Parmigiani: Online editor Mike
 Disher's account of the collaboration
 between Bugatti and Parmigiani
 Fleurier that led to the creation of the
 new Parmigiani Super Sport watch (1)
 inspired by the new Bugatti Super
 Sport car. See plenty of shots of both
 the car and the watch.
- Seiko: A look at the world's first Active Matrix EDP digital watch (2) with a 300-dpi high resolution display allowing very detailed graphics.
- Speake-Marin: Mike Disher's report on Peter Speake-Marin's new Thalassa watch (3), every component of which (movement, case and dial) was designed by Speake-Marin himself.
- Montblanc: Norma Buchanan interviews CEO Lutz Bethge about the

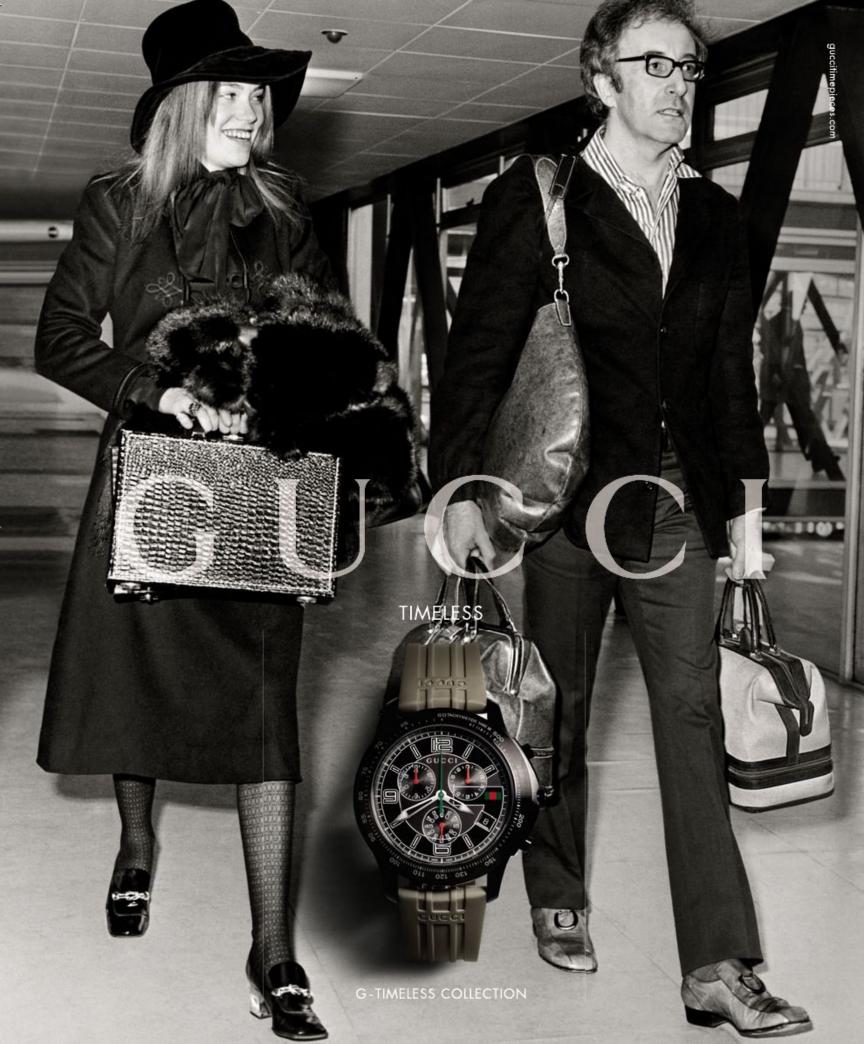
double-faced Metamorphosis watch (4), which was the talk of the SIHH show in January, but which wasn't quite working at the time. Well, it is now and will soon debut at a price of \$297,000

- Breguet: The Type XX turns 50.
- Visual Quiz: Can you spot the sports watch sticking slightly out of a jacket sleeve? How many of the 12 shy sports watches can you identify?













Sports Stuff

The wide world of watches and the wide world of sports

- 1. Which of the following watches is labeled with the highest degree of water-resistance?
- A. Rolex Submariner
- B. Blancpain 50 Fathoms
- C. Bell & Ross Marine
- D. Royal Oak Offshore
- 2. What brand will time the 2012 Olympics?
- A. Swatch
- B. Omega
- C. Seiko
- D. TAG Heuer
- 3. Which tennis player wears a Richard Mille watch while on the court?
- A. Roger Federer
- B. Andy Roddick
- C. Novak Djokovic
- D. Rafael Nadal
- 4. Which golfer wears a Rolex while on the course?
- A. Sergio Garcia
- B. Phil Mickelson
- C. Tiger Woods
- D. Graeme McDowell
- 5. Sprinter Usain Bolt is sponsored by what brand?
- A. TAG Heuer
- B. Omega
- C. Audemars Piguet
- D. Hublot
- 6. The Ploprof is a nickname for a particular version of which sports-watch model?
- A. Omega Seamaster Professional

- B. Citizen 1000 Meter Professional Diver
- C. Fortis B-42 Professional Chronograph
- D. Doxa Seaconqueror Professional
- 7. One of the purposes of a rattrapante is:
- **A.** To time laps in a race
- B. To measure speed
- C. To measure distance
- D. To protect a watch crown from blows
- 8. The purpose of a helium escape valve is to release helium that has entered the watch case:
- **A.** At great depths, because deep water contains much helium
- **B.** While the diver is in a diving chamber
- **C.** Because of extreme pressure exerted on the case at great depths
- **D.** None of the above
- 9. Which quarterback is an ambassador for Citizen?
- A. Tony Romo
- B. Eli Manning
- C. Peyton Manning
- D. Tom Brady
- 10. Festina has a longstanding connection to which sports event?
- A. The Tour de France
- B. The U.S. Tennis Open
- C. The Patrouille des Glaciers
- D. The Snowboarding Grand Prix
- 11. A version of which sports watch has been nicknamed "the Jumbo" by watch enthusiasts?
- A. IWC Aquatimer
- B. Patek Philippe Nautilus

- C. Breitling Chronomat
- D. Audemars Piguet Royal Oak
- 12. A water-resistance level of 30 meters on a watch means it is safe to wear the watch:
- A. Swimming
- B. Swimming and snorkeling
- C. 'Swimming, snorkeling and recreational scuba diving
- **D.** None of the above
- 13. This spring a viral video of Ball Watch ambassador Guillaume Néry showed him:
- **A.** Bungee-jumping from the Kawarau Bridge
- B. Skysurfing over the Grand Canyon
- C. Free diving to the bottom of Dean's Blue Hole
- D. Canoeing in Lake Neuchâtel
- 14. What 2010 team included four Audemars Piguet ambassadors?
- **A.** The Formula 1 McLaren-Mercedes team
- B. The World's Cup soccer team from Spain
- C. The Alinghi team in the America's Cup
- D. The European team in the Ryder Cup

8B; 9B; 10A; 11B; 12D; 13C; 14D



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MARTY BERNSTEIN

LUXUIY, thy lame is... The Korean car maker's new Equus sedan challenges the big boys.

o many car enthusiasts, using the words "Hyundai" and "luxury" to describe a new model is oxymoronic. Hyundai, the fastest-growing car company in the world, is best known for its low prices and long warranties. Nevertheless, the Korean auto maker has premiered a new luxury-laden flagship vehicle in the United States called Equus, and in doing so, has staked a claim in the rarefied territory owned by such marques as Audi, BMW, Lexus and Mercedes-Benz. The question is, can it challenge the European, Asian and even U.S. luxury brands based on the established hallmarks and competitive benchmarks of automotive luxury?

I believe the answer is yes. In fact, this urbane, rear-wheel-drive sedan is likely to set new standards for quality, sumptuousness, and amenities in luxury cars at a price \$20,000 to \$30,000 under the market leaders' sedans. And here's why.

Hyundai has kept the Equus package simple. Only two models are being offered: the Equus Signature and the Equus Ultimate, the difference based on interior trim and features, not in overall length, engine or chassis. The Equus has a sleek exterior design that's a bit derivative rather than dynamic or distinctive. The front end has a neatly packaged, swooping light grouping of HID lights, LED signals and a light ribbon, while the rear also has wraparound lights.

Open any door and a pleasant surprise awaits even those who are accustomed to luxury and spacious interiors in their cars. The dimensions and attention to detail in the Equus interior are very impressive. Superior quality materials — wood, leather, metal and fabrics — display splendid craftsmanship without British understatement, Japanese pretense or Teutonic *hauteur*. There's an atmosphere of comfort, harmony and wellbeing in both front and back seats.

Features, amenities, devices, sophisticated safety systems and technotchotchkes that other brands charge big bucks for as options are standard in both Equus models. The list is way too long to run here, but it's everything you'd expect and much more. The Ultimate model adds creature features for the rear seat, including individual power-reclining chairs with massage function and a rearconsole refrigerator.

Hyundai's engineers have produced an agile vehicle using high-strength steel to create a rigid, lightweight body structure. The Equus's 4.6-liter, 385-hp V8 engine has 333 lbs of serious torque. The

> six-speed automatic transmission with a manual sports mode is extraordinarily quiet and smooth. The air suspension with continu-

ous damping provides a very

Hyundai's new Equus luxury sedan

comfortable, smooth ride even when driven very hard on twisty roads.

This is not a four-door sports car. This is a serious, comfortable and luxurious sedan that is exhilaratingly fun to drive without front or rear passengers screaming, "Slow down, damn it!" or "I'm getting carsick."

Another very interesting component of the new Equus: the pleasant buyer-dealer experience. (Now *that* is an oxymoron.) Hyundai has a new purchase paradigm: if you're interested in an Equus, just call one of the 250 authorized Hyundai dealers and speak with a trained Equus specialist who will make an appointment to bring the car to you for a test drive or just to look it over. Considering leasing rather than buying? No worries; it's done the way you want it done.

For service and maintenance, dealers will pick up your car, bring you a loaner Equus (or Genesis) to use, and return your vehicle when done. It's all arranged by using the iPad that is the owners' manual with a direct app link to the dealer. The Equus has a 100,000-mile guarantee that has been augmented with a five-year or 60,000-mile guarantee on everything, including wear-and-tear items. The price of the Equus Signature is being quoted at under \$80,000, the Ultimate at a few thousand more.

You know that feeling of looking in the driver's window of a new luxury car to see if it's the one you'd like to buy after that big promotion, or when the market goes up, or when Uncle John remembers you in his will? That feeling of exaltation will return the first time you gaze into the Equus, and the idea of a luxurious Hyundai will strike you as an oxymoron no longer.



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JAN DIVINCENZO

The Duofold Abides

Because, in the end, it's just "a better pen."

eorge Safford Parker was a farm boy with a longing to see the world beyond Shullsburg, Wisconsin. It was the mid-19th century the age of railroad expansion, the telegraph and technological optimism. As the railroads needed telegraphers along their lines, 16-year-old Parker, after reading an ad in Youth's Companion for the Valentine School of Telegraphy, cobbled together the \$55 tuition and made his way to Janesville. Graduating a year later, he started teaching telegraphy and, to supplement his paltry income, sold pens to his students for the John Holland Pen Company. It was his frustration with these fragile and leaky baubles that signaled his destiny: "to make a better pen."

Parker founded his company in 1888 and patented his first pen the following year, contracting other firms to make the parts. With an investment of \$1,000 from insurance salesman William F. Palmer, he started manufacturing his own pens in 1891. The business grew and the patents issued forth, among which was the "Lucky Curve" ink feed (1894) that channeled ink by capillary action back into the reservoir. After World War I, Parker introduced the Jack Knife Safety Pen (1916), which had an improved Lucky Curve feed, a threaded outer cap and inner safety cap. This pen put Parker on a par with other big pen companies of the time, such as Sheaffer, Conklin, Wahl and Waterman, pushing sales over \$1 million.

In 1921, building on the success of the Jack Knife, Parker issued the Duofold. It was a big, hard-rubber flat-top, measuring 5 1/2 inches capped. Having just trav-



eled the Orient, he dubbed its red-orange color "Chinese Mandarin Red," which spoke to Jazz-Age exoticism and made a racy statement among its drab, black contemporaries. The Duofold came equipped with Parker's biggest 14k-gold nib, its most advanced safety features, and a button-filling system. The Duofold's 25-year guarantee and top-shelf price were consistent, as its name suggests, with its twofold value, or, as the ad copy claimed, "a \$10 pen for \$7."

The Roaring Twenties crowd ate it up—to the tune of a million units in the first year and twenty-five by the third. The phenomenal success of "Big Red," the pen's nickname, made Parker the unequivocal king of the pen companies. In 1924, the company issued a Duofold Lady and Duofold Junior, scaled-down versions of big daddy. In 1926, to compete with Sheaffer's green plastic "Radite," Parker, with a little

help from Dupont, switched to "Permite" and escalated the color race with Duofolds in Jade Green, Lapis Lazuli, Mandarin Yellow and, in 1928, Moderne Black and Pearl. A redesigned Duofold with tapered ends and pearl-laminate colors debuted in 1929. By the 1930s, however, the Duofold rage began to wane, and Parker needed a new flagship. By 1933, the Duofold was out and the Vacumatic was in.

Throughout the late 1930s and '40s, Duofold models appeared intermittently, such as the Geometric Duofold (1939), the Vacumatic Duofold (1941), the Duofold NS (1946), and the AF Duofold (1948). But these didn't take like the original, behind which a legacy had grown. Sir Arthur Conan Doyle wrote his Sherlock Holmes stories with a Duofold and publicly endorsed the pen. The French novelist Colette claimed to be inseparable from her Mandarin Yellow Duofold, now one of the most coveted vintage models. Puccini used a Duofold to compose La Bohème, as did George Bernard Shaw to write Pygmalion. On the political front, a Duofold in the hand of General Douglas MacArthur signed the Japanese surrender ending WWII in the Pacific, and Secretary of State William P. Rogers used one to sign the Vietnam Peace Agreement.

Since 1988, when Parker issued the Duofold Centennial Edition, the company (now owned by Newell Rubbermaid) has produced a suite of limited editions and a standard Duofold in eight different finishes. The current standard models (ranging from \$250 to \$575), well regarded by high-end collectors, come with 23k-gold nibs available in 14 sizes, converter fillers, and platinum or gold appointments. As for "Big Red," well, judging by the collectors' displays at the DC Pen Show this year, he abides as the proud centerpiece of the best collections.



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RICHARD CARLETON HACKER

I'll Take Manhattan

The classic cocktail has hazy origins but enduring appeal.

here are not many cocktails named after cities, let alone cities built on an island, and few are as popular as the Manhattan. But oddly enough, the origin of the Manhattan is almost as mysterious as the beginning of the Martini, another famous American cocktail also traditionally served chilled and straight up.

According to the most-oft-quoted legend, in 1874, during a party at The Manhattan Club in New York City to honor Democratic presidential nominee Samuel J. Tilden, hostess Jennie Churchill (the American wife of Britain's Lord Randolph Churchill and future mother of Winston Churchill), asked for a drink made with an American whiskey that would be slightly spicier and sweeter than a straight pour. One of her guests, Dr. Iain Marshall, obliged by adding some vermouth, bitters, and a cherry and graciously presented his concoction to her. Unlike guest of honor Tilden, who subsequently lost the election to Republican candidate Rutherford B. Hayes and sank into obscurity, Lady Churchill's cocktail was the hit of the party and achieved immortality. Everyone agreed it should be called the Manhattan, after the club where it was invented.

However, the facts indicate that Lady Churchill may have been in England at the time, giving birth to the future prime minister (Sir Winston was born in Oxfordshire on November 30, 1874). Furthermore, the Manhattan may have already existed. Some sources say the cocktail was invented in the 1860s by a New York bartender named Black, who ran a saloon on Broadway, just below Houston Street. Due to this geographical location, it became known as the Manhattan. Personally, I prefer the first version because — to para-

phrase from *The Man Who Shot Liberty Valance* — "When the legend becomes better than the facts, print the legend."

Another controversy is whether a Manhattan should be made with bourbon or rye. I believe the original Manhattan was made with rye, as it was on the scene first and bourbon only gained in popularity during the latter part of the Victorian era. But once we entered the 20th century, Manhattans began being made with a greater variety of spirits, from Tennessee whiskies to Canadian blends. The Savoy Cocktail Book, compiled in 1930 by the legendary Harry Craddock, head bartender of The American Bar at The Savoy hotel in London, lists four different Manhattan recipes, two made with rye, and two with Canadian Club.

Craddock's modern-day counterpart, Tony Abou-Ganim, describes the Manhattan perfectly and succinctly in his excellent book, *The Modern Mixologist* — *Contemporary Classic Cocktails:* "The Manhattan, made of straight rye whiskey, Italian sweet vermouth, and Angostura bitters, is simple, yet sultry."



Sultry, yes. But simplicity can be a matter of interpretation, for there are numerous variations on the Manhattan. In its purest form, using an ice-filled cocktail shaker, it is a two-ounce pour of bourbon or rye, a splash of both sweet and dry vermouth, stirred (although some prefer it shaken), then strained into a chilled martini glass and garnished with a cherry. For a Perfect Manhattan, add bitters.

However, at Red O, the West Holly-wood hotspot opened by celebrity chef Rick Bayless, head bartender Steven Calabro has created the Red O Manhattan, using 100-proof Knob Creek bourbon, Carpano Antica vermouth and grapefruit bitters, and a Luxardo cherry garnish.

Another celebrity chef, Michael Mina, opened his now-famous Clock Bar at the Westin St. Francis in San Francisco two years ago by having his head bartender at the time, Marco Dionysos, create his Uptown Manhattan — one of the best I've ever had. Here's his award-winning recipe:

2 oz. Maker's Mark bourbon 3/4 oz. Amaro Nonino Italian bitters 1 dash Regans' Orange Bitters

1/4 oz. juice from Luxardo brandied cherries (or substitute Cherry Heering) Stir, strain into chilled cocktail glass,

rim with flamed orange rind, garnish with three brandied cherries.

Indeed, the simple Manhattan can be multi-faceted. So it's not surprising that on the back of his business card, Chris Morris, Master Distiller for Woodford Reserve, lists a Manhattan recipe. Made with Woodford Reserve bourbon, of course. \bigcirc

Head bartender Jaren Singh serves up a Perfect Manhattan made with Basil Hayden bourbon at Michael Mina's Stonehill Tavern in the St. Regis Monarch Beach resort in Southern California.



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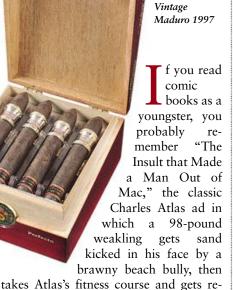
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MARK BERNARDO

A Mightier Mac and a Dynamic Don

Tasting muscled-up versions of some normally mild-mannered cigars



Macanudo

venge using his new muscles and confidence. In today's cigar world, another "Mac" — namely mild-mannered Macanudo, the best-selling premium cigar brand in the United States - seems to be taking similar measures to prove it can stand up to the full-bodied, heavyweight cigars that are routinely battling it for shelf space. At this year's IPCPR show in New Orleans (basically the cigar industry's Baselworld), Macanudo, prized by legions of casual smokers for its consistently mild flavor profile but often dismissed by the connoisseur class for the same reason, introduced two new line extensions that push the strength envelope: Macanudo Cru Royale and Vintage Maduro 1997. And Macanudo wasn't the only brand messing with its mild image. Across the hall, another brand recognized for its smooth, mild flavor, Don Diego, expanded its portfolio with the introduction of Don Diego Fuerte (Spanish for "strong") by Omar Ortez.

The trend toward cigar brands offering bolder, more full-bodied alternatives to their standard line has been in full force for a while now, probably because many well-known brands sold in the U.S., even those with a Cuban pedigree, are considered somewhat tame by post-cigar-boom standards. Hence the launch of brand extensions like Montecristo White Label, Davidoff Millennium Blend, Romeo y Iulieta Habana Reserve, Punch Gran Puro, H. Upmann Vintage Cameroon, Ashton Sun Grown, Cohiba XV, and numerous others. Even Macanudo has dabbled in expanding its repertoire with bolder blends, introducing Macanudo Robust and Macanudo Maduro. And while both are great-tasting cigars, they didn't knock anyone's socks off with their flavor intensity. The brand took another step last year with the release of Macanudo 1968, a more powerful blend of specially aged Nicaraguan and Dominican tobaccos that made even the hardcore aficionados take notice. This year's Cru Royale should also have cigar snobs buzzing. The cigar mixes Dominican, Nicaraguan and Brazilian filler tobaccos with a Dominican binder leaf and a Havana-seed wrapper grown in Ecuador. The gargantuan 6 x 54 Cru Royale Toro I smoked had an ample draw, generating aromatic clouds of smoke and a pleasant, campfire aroma. The flavors were robust, with notes of caramel, molasses and spices that left no harsh aftertaste. Best of all, while it was definitely more full-bodied than a standard Mac, the Cru Royale delivered the powerful flavors with the brand's characteristic smoothness.

Macanudo Vintage Maduro 1997 takes the existing Macanudo Maduro blend to a new level. The key element, of course, is the wrapper, a Connecticut broadleaf from the exceptional 1997 vintage, carefully aged and nurtured since then for maximum complexity of flavor. This dark, oily wrapper contributes the lion's share of the cigar's earthy, rich, coffee-like flavors, but the sun-ripened Honduran binder and three-nation filler blend of Dominican, Nicaraguan and Brazilian leaf play their roles as well, contributing to a cigar that is powerful but never overpowering.

Don Diego has been around since 1964, created by expatriate Cuban cigarmaker Pepe Garcia and blended to satisfy the palates of U.S. consumers who'd been deprived of Cuban cigars by the embargo. These days, however, no one is mistaking the flagship Don Diego, with its mild, Dominican blend and light, Connecticut wrapper, for a full-bodied Habano. The brand's only other extension, Playboy by Don Diego, is a solid smoke with beautiful packaging, but with a blend that can charitably be described as medium-bodied. Altadis U.S.A., the brand's owner, brought in master blender Ortez to create a Don Diego cigar with a bit more oomph. The result is the powerhouse Don Diego Fuerte, made at Ortez's factory in the Nicaraguan tobacco region of Condega and composed of Dominican and Nicaraguan filler, a Nicaraguan binder and a cocoa-brown, Ecuadorian Habanaseed wrapper. The cigar is rich and spicy, with hints of pepper, leather and roasted nuts, and a long, typically Nicaraguan finish. No one's kicking sand in this stogie's face; it may even be a bit of a bully itself. O

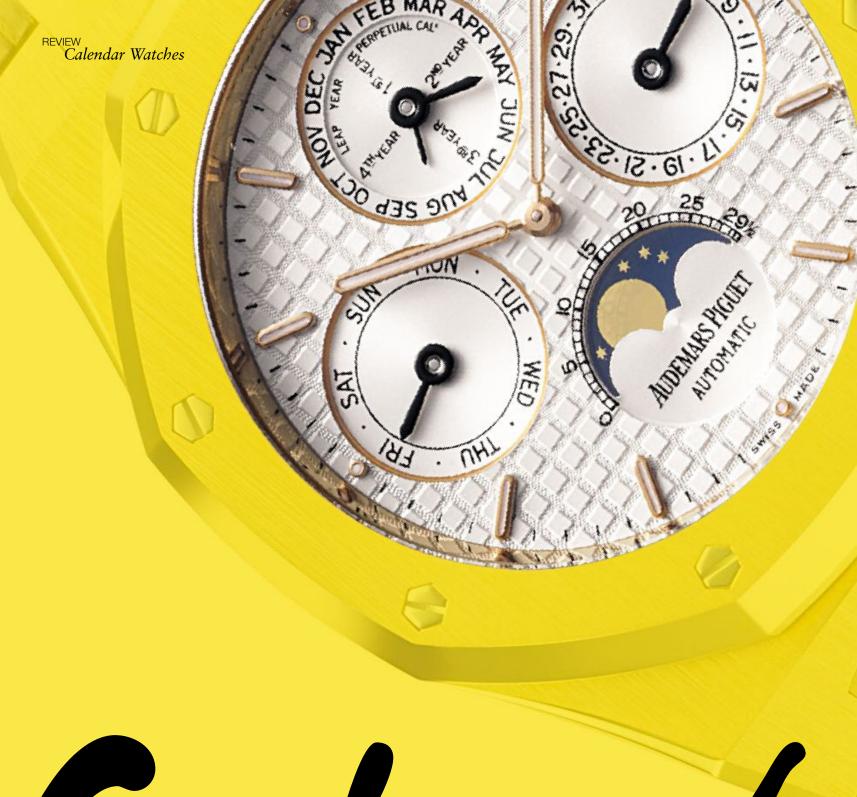
MONTBLANC. THE TIMEWRITERS.



The Villeret Vintage Chronographe from the Montblanc Collection Villeret is inspired by the original design of the famous 1920s Minerva chronograph with telemetre and tachymetre scales. Painstakingly crafted and hand-finished by master watchmakers at the Montblanc Manufacture de Haute Horlogerie in Villeret, Switzerland. Manufacture Calibre MB. 16.29, monopusher chronograph with column wheel and horizontal clutch, 18,000 beats per hour. "Grand Feu" enamel dial on 18 K gold, 47 mm red-gold case. Sapphire crystal case back. Limited to 58 pieces only. MONTBLANC. A STORY TO TELL.







alema



FULL CALENDAR: GIRARD-PERREGAUX

For its 1966 Full Calendar watch, Girard-Perregaux has managed to create a dial that is simple, beautiful and clearly arranged despite its variety of displays. The two rectangular displays for the day and month play a large role in this. The red lettering in the displays, though, doesn't: it is harder to read than anything else on the dial and is somewhat at odds with the watch's otherwise classic design. A limited-edition model of this watch (199 pieces), with a palladium case, has blue lettering for the day and month. Red or blue, the day indication takes about an hour and a half to advance completely each night. Its other displays move more quickly.

The watch's diameter (40 mm) and thickness (11 mm) make for a flat, elegant silhouette. The nicely finished, seamless alligator strap and narrow, pronged buckle suit the case well. Unfortunately, the crown presses uncomfortably into the back of the wearer's hand — a problem that often occurs in calendar watches because of the modular construction.

The crown is easy to pull out to set the time. A hack mechanism enables you to synchronize the watch with a reference time source. The calendar displays are set using four recessed corrector buttons. However, in every month with fewer than 31 days, you must press the recessed date corrector and risk scratching the beautiful gold case. Simply turning the hands 24 hours ahead doesn't work because it will put the day and moon-phase out of sync.

Through the pressure-fit caseback with sapphire window you can see the manufacture movement, GP 033 MO, which is derived from the GP 3300. It is decorated with beveled and polished edges, côtes de Genève, a gold rotor and blued screws. For what the watch costs (\$19,800) you'd expect to see a freesprung fine regulator rather than the Triovis fine regulator, which would have allowed the hairspring to "breathe" freely. Otherwise, the price is appropriate, given the in-house move-

SPECS

GIRARD-PERREGAUX <mark>1966 FULL C</mark>ALENDA<mark>R</mark>

Functions: Hours, minutes, seconds; date; day; month; moon-phase

Movement: Cal. GP033MO, automatic; 28,800 vph; Triovis fine regulating system; power reserve = 46 hours

Case: Rose gold, nonreflective sapphire crystal, pressure-fit caseback with sapphire window; water-resistant to 30 meters

Price: \$19,800







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SPECS

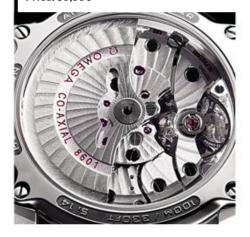
OMEGA HOUR VISION ANNUAL CALENDAR

Functions: Hours, minutes, seconds; annual calendar with date and month

Movement: Cal. 8601, automatic; 25,200 vph; fine regulating system with freesprung balance; power reserve = 55 hours

Case: Stainless steel, nonreflective sapphire crystal, sapphire windows on caseback and sides, water-resistant to 100 meters

Price: \$9,550



ANNUAL CALENDAR: OMEGA

On most calendar watches, the date display advances to "31" regardless of how many days are in the month. This means that at the ends of months having fewer than 31 days (five times a year), you must advance the date display manually to have the "1" displayed on the right day. An annual calendar reduces the number of annual adjustments to one. It advances correctly for every month having 30 or 31 days; the only month it can't master is February, which, of course, has either 28 or 29 days. The annual calendar gets its name from its ability to run for an entire year without correction.

The Omega Hour Vision Annual Calendar has a very simple calendar display, consisting only of an oblong window. This contributes to the watch's sporty-elegant character. The Omega is the only calendar watch of those we reviewed that does not have any subdials. Omega wanted to limit the number of displays on the dial, so it decided that in addition to the date it would show only the month, which you need to see in order to set the calendar.

Happily, the date and month advance instantly and simultaneously. Our test piece accomplished this feat at two minutes past midnight, much quicker than all the other watches. Plus, the date and month can be quickly adjusted in the first extended crown position: you turn the crown clockwise to change the date and counterclockwise to change the month. It is very easy to set, given that annual calendars are more complicated than standard calendars. The crown-setting system also means the watch has no need for the obtrusive corrector pushers found on some other calendar watches. This is a plus for aesthetic reasons and also because it makes for greater water-resistance: 100 meters, the highest level of any of the watches we reviewed. However, the crown moves stiffly during manual winding. The watch has a hack mechanism that permits precise setting of the time.

The highlight of the Hour Vision is its case, which is designed so that the movement can be viewed through sapphire windows in the caseback and sides. Granted, there is relatively little to see from a movement's sides, but the windows are impressive nonetheless. (Another benefit of not having correction pushers is that they would have obstructed the lateral view.)

The watch's movement, the COSC-certified 8601, a double-barreled automatic, is derived from Caliber 8500,







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REVIEW Calendar Watches

\$36,500.

Omega's first in-house base movement. It is fitted with an improved version of Omega's proprietary Co-Axial escapement. Unlike the 8500, the 8601 has an innovative silicon hairspring designed to increase precision. Fine regulation is accomplished by means of four screws on the balance. The balance is supported by a bridge that helps protect it from shocks and enables more precise adjustment of the endshake, which improves the rate performance.

The movement's decoration suits its modern design: black screws, black barrels, a black balance and red highlighted engraving. Some edges of the bridges, screws and chatons are beveled.

The sturdy and easy-to-use folding clasp matches the high quality of the finishing, with great attention given to its details. The clasp holds and guides the strap so that very little metal touches the skin. The watch hugs the wrist; its wearing comfort is exceptional. The price for this model, \$9,550, is lower than you might expect.

ANNUAL CALENDAR WITH MOON-PHASE: *PATEK PHILIPPE*

In 1996 Patek Philippe became the first watch manufacturer to present an annual calendar watch, Ref. 5035. Its Ref. 5146 Annual Calendar, launched in 2005, has a classic feel, with its moon-phase and two subdials for day and month. It also provides the convenience of an easy-to-read window date display. The less important displays (month and day) are not so easily legible. There is also a power-reserve display at 12 o'clock. The silver-colored hour and minute hand do not present much contrast with the gray dial but they are, fortunately, coated with luminous material.

The calendar displays are set using four pushers on the sides of the watch case. The date requires about an hour and a half to advance.

SPECS

PATEK PHILIPPE ANNUAL CALENDAR

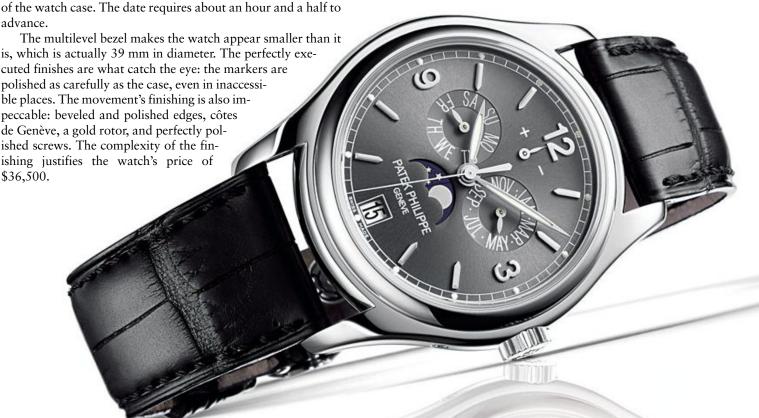
Functions: Hours, minutes, seconds; power reserve; annual calendar with date, day, month, moon-phase

Movement: Cal. 15 S IRM QA LU, automatic; 21,600 vph; fine regulating system with poising weights; power reserve = 48 hours

Case: Rose gold, sapphire crystal, fully threaded caseback with sapphire window; water-resistant to 30 meters

Price: \$36.500





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SPECS

BREITLING MONTBRILLANT OLYMPUS

Functions: Hours, minutes, seconds; chronograph with 30-minute and 12-hour counters; four-year calendar with date, weekday, month, moon-phase

Movement: Cal. 19 (ETA 2892 with Dubois Dépraz module), automatic; 28,800 vph; fine regulating system with eccentric; COSC-certified chronometer; power reserve = 42 hours

Case: Stainless steel, nonreflective sapphire crystal, fully threaded caseback, water-resistant to 30 meters

Price: \$7,390



FOUR-YEAR CALENDAR: BREITLING

A four-year calendar needs to be reset even less frequently than an annual calendar. It recognizes the length of each month with one exception, leap-year Februarys, when the owner must adjust the watch at the end of the month. Breitling offers this extremely rare complication in its Montbrillant Olympus.

In addition to the date, day, month and moon-phase, the watch also has a chronograph with 30-minute and 12hour counters and a small running-seconds subdial, so all three subdials share functions. This, in conjunction with minuscule type, severely limits legibility. French names for the days and months are also not helpful for wearers who don't know French. Still, the time and moon-phase are easy to see. The rotating slide rule and tachymeter scale take up the largest portion of the dial. Despite the impressive case diameter of 42 mm and the large crystal, limited space is provided for the calendar displays.

The design is based on other historical Breitling models. Its beaded bezel harks back to Breitling's first chronograph with a slide rule design, the 1942 Chronomat. Instead of a sapphire window, the caseback features an elegant image of the original Breitling factory. The watch we

were given to review had a strap that was much too long, and even on the last hole the watch slipped on the wrist. Aesthetically speaking, though, the wide strap and pronged buckle, with its winged "B" logo, are a smart fit with the overall sporty and vintage character of this watch.

Setting the watch can at first be a little confusing because the first crown position has no function. To set the time, you pull the crown out to the second position. The watch has a hack mechanism so you can synchronize the time with a reference signal. The calendar displays are set using four pushers. The four-year calendar has one minor drawback: in leap years, as in all other years, March 1 follows February 28. The watch has no way to show the date of February 29. And when, in a leap year, the watch shows March 2 on March 1, the wearer must press the date correction pusher 30 times to reach the correct date. While he's doing so, the day and the month also continue to advance and must also be corrected — a rather complicated and inconvenient process.

The movement is derived from the ETA 2892 and fitted with a module from Dubois Dépraz. It is decorated with côtes de Genève on the rotor and perlage on the bridges. This movement is the most modestly decorated of all the watches we re-



SPECS

IWC DA VINCI PERPETUAL CALENDAR DIGITAL DATE-MONTH

Functions: Hours, minutes, seconds; flyback chronograph with counters for minutes and hours; perpetual calendar with large date, large month and leap-year display

Movement: Cal. 89800, automatic; 28,800 vph; fine regulating system with balance weights; power reserve = 68 hours

Case: Rose gold, sapphire crystal with nonreflective coating on both sides, eight screws fastening the caseback with sapphire window; water-resistant to 30 meters

Price: \$44,300





viewed. On the plus side, though, the 2892 is known for its exceptional reliability, and this movement, as do those in all of Breitling's watches, has COSC chronometer certification. The watch's price of \$7,390 is about what we would expect to pay for such a watch. And the four-year calendar provides the added appeal of an exotic complication.

PERPETUAL CALENDAR: IWC

The perpetual calendar is even more complex than a four-year calendar because it shows February 29 in leap years. It is usually accomplished using a 48-month wheel, or a 12-month wheel with a satellite.

Like Breitling, IWC combines its calendar with a chronograph. The watch is called the Da Vinci Perpetual Calendar Digital Date-Month. When IWC first combined these two complications in its Da Vinci in 1985, it was viewed as an extraordinary feat. A quarter-century later, with complications abounding, IWC is offering some special extras: the chronograph is a flyback and shows elapsed hours and minutes in a single subdial.

The perpetual calendar (like the time) is easy to read: the date and month are shown in two large apertures on the left and right sides of the dial, respectively. Each of these displays uses two disks, one for each of the outsized digits. It takes about 20 minutes for both displays to advance completely. At the end of February, when four days must be bridged, the process begins earlier and is complete after two hours, shortly after midnight.

The running seconds subdial and a window for the leap year display are at 6 o'clock.

The perpetual calendar is fully programmed at IWC. If you need to reset it, you do so using the crown alone. To move the date forward, you pull the crown out to its first position and turn it clockwise. At the end of the month, you must also advance the month. In doing so, you must be careful not to turn the crown too far, because then you will have to either advance the months through the entire four-year cycle to return to the correct month, or allow the incorrect numeral to remain in place for the duration of the month. While the chronograph pushers operate smoothly, the crown is more difficult to handle. It is screwed down despite the case's relatively low water-resistance of 30 meters.

The Da Vinci is an elegant and impressive watch. The hefty, complex gold case and elaborate dial contribute to the price of \$44,300. And although the strap might have benefited from a bit more attention to detail, it allows this large watch to lie quite comfortably on the wrist.

The caseback window reveals the shock-absorbing rotor bridge of this *manufacture* movement. The chronograph works with a column wheel and rocking pinion. Fine regulation is accomplished with regulating screws on the balance. IWC decorates the movement with circular finishes and perlage but leaves the edges untouched.



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SECOND TIME ZONE: **ULYSSE NARDIN**

Ulysse Nardin combines its perpetual calendar with a second time zone. This watch, the GMT Perpetual, emphasizes ease of operation. It is the only perpetual calendar in which you can set the date forward or back via the crown. First you pull the crown out to the second position and set the minute and hour hands forward or back until the correct day is shown. Then you push the crown back to the first position (which requires a bit of fine motor skill) to set the large date display forward or back. If you pass the 31st day of the month going in either direction, you will also change the month. If you go from December to January or vice versa, the year will change as well.

It takes about 45 minutes for the day and date to change completely. When advancing from February 28 to March 1 (when the date must change four times) this process takes about three hours. Shortly after 12 o'clock the GMT Perpetual shows all the correct calendar information.

The calendar displays appear to be distributed somewhat randomly on the dial. The large date display (which is very dial and the day is placed within the seconds subdial at 9 o'clock, the month on the opposite side of the dial and the last two digits of the year at the bottom at 6 o'clock. There is a triangle-tipped GMT hand that points to the 24-hour track on the inner flange that is divided into two colored sections for day and night.

Pushers marked with "+" and "-" on the left and right sides of the case are used to advance the hour hand by one hour forward or back. The GMT hand continues to show the home time — a practical feature when traveling into a different time zone.

This caliber is derived from the movement developed in 1994 by Nouvelle Lemania for the Ebel chronographs and the perpetual calendar for Ulysse Nardin. The calendar mechanism was designed by Ludwig Oechslin for Ulysse Nardin. The beautiful rotor bears the brand logo, an anchor on a blue background.

Like the movement, the case, dial and hand-sewn strap are nicely finished. However, the strap is quite stiff when new and detracts from the watch's overall wearing comfort. Nonetheless, for \$64,900, the customer gets a remarkable perpetual calendar that is easy to set.



ULYSSE NARDIN GMT PERPETUAL

Functions: Hours, minutes, seconds; second time zone; perpetual calendar with large date, day, month, year

Movement: Cal. UN 32, automatic; 28,800 vph; Triovis fine regulating system; COSC-certified chronometer; power reserve = 48 hours

Case: White gold, nonreflective sapphire crystal, six screws fastening the caseback, water-resistant to 30 meters

Price: \$64,900





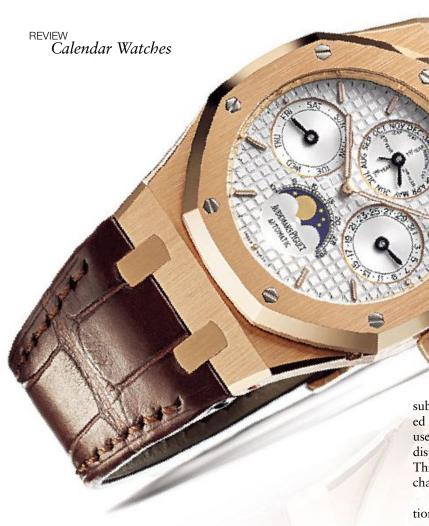
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SPECS

AUDEMARS PIGUET ROYAL OAK PERPETUAL CALENDAR

Functions: Hours, minutes; perpetual calendar with date, day, month, leap year, moon-phase

Movement: Cal. 2120/2802, automatic; 19,800 vph; Gyromax fine regulating system; power reserve = 40 hours

Case: Rose gold, sapphire crystal, screwdown caseback with sapphire window, water-resistant to 20 meters

Price: \$59.000



PERPETUAL CALENDAR WITH MOON-PHASE: AUDEMARS PIGUET

The Royal Oak Perpetual Calendar from Audemars Piguet is most remarkable for the classic arrangement of its four subdials showing the date, day, month and moon-phase, the same layout used for pocketwatches. There is also a small hand within the month display to indicate the leap year. The small date subdial at 3 o'clock is more difficult to read than a window date display, but its black hand stands in sharp contrast to the silver dial. This is also true of the day subdial, at 9 o'clock. The month subdial, at 12 o'clock, is crowded and hence somewhat harder to make out - but this dial isn't used much, anyway. Luckily, one refers even less to the leap-year display, because here the tiny print requires a loupe to decipher. This watch needs only 45 minutes for all its calendar displays to change at year's end.

Although the watch is part of AP's sporty Royal Oak collection, it has an elegant look, especially the version with rose-gold case and alligator strap shown here. The classic dial underscores the watch's dressy side and tends to overshadow the watch's sportier features. The case is surprisingly thin, just 9.4 mm. Only the four steel correctors appear out of place on the gold case, and their placement between the case's middle section and bezel poses some risk that the wearer's finger could slip when setting the date.

The hexagonal crown pulls out to just one position, for setting the time. The fact that the watch has no hack mechanism is not immediately apparent because the watch has no seconds hand. The time is easy to read, even in the dark, thanks to the luminous material on the hour and minute hands and hour markers.

Audemars Piguet's finishing quality is equal to Patek Philippe's. The variety and complexity of satin and polished finishes on the watch's case are impressive, as are other details like the hand-sewn strap and the folding clasp featuring the brand's initials.

The movement was also decorated with great attention to detail. The gold, skeletonized rotor is hand-engraved and the flanks of the gear teeth are polished, as are the screw heads and beveled edges. Fine regulation is done by means of weights on the balance wheel, and the escape wheel has a shock absorber. Consisting of the ultra-thin 2120 (2.45 mm thick) and a perpetual calendar module, the movement is just 4 mm thick. (When the 2120 was introduced, in 1967, it was the world's thinnest movement with a central rotor.)

In light of the watch's technical features, its price of \$59,000 is understandable. The perpetual calendars from Patek Philippe and A. Lange & Söhne are similarly priced. Complications from major manufacturers almost necessarily have a hefty price.

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ANDERSEN GENÈVE PERPETUAL SECULAR CALENDAR

Functions: Hours, minutes, seconds; secular calendar with date; display on back with month and leap year; 50-year and 400-year displays

Movement: Based on ETA 2892, modified by Svend Andersen, automatic; 28,800 vph; fine regulating system with eccentric; power reserve = 40 hours

Case: Platinum, nonreflective sapphire crystal; pressure-fit caseback with window on back for second dial; water-resistant to 30 meters

Price: \$55,000

SECULAR CALENDAR: ANDERSEN GENÈVE

Not even perpetual calendars can run forever without correction. They should really be called "100-year calendars," because they will need to be corrected in most so-called "secular" years, or those years divisible by 100. That's because those years, or most of them, anyway, are not leap years even though they are divisible by four. (The exception is years divisible by 400, which *are* leap years.) A perpetual calendar doesn't adjust for this secular-year rule: it treats every year divisible by four as if it were a leap year. It is for this reason that all perpetual calendars will have to be corrected on March 1, 2100.

Owners of Svend Andersen's **Perpetual Secular Calendar** won't have to bother with that. This watch adjusts automatically during secular years, by eliminating February 29. It also knows the rule that says a leap year *does* occur in years divisible by 400.

At first glance the watch looks fairly simple, with its understated, classic case (comfortable to wear, but a little top-heavy). Its hours, minutes and date display, with its large numerals, are easy to read. (The arrangement of the dates on the date ring nonetheless means that parts of the previous and following dates always show in the date window.)

The caseback window reveals not the movement, but rather another dial showing the other calendar displays. One subdial shows the month over a four-year period, with the names of every third month written out and the two months between them indicated by dots. The same subdial shows the four-year leap-year cycle. The other subdial shows the year by means of a hand that rotates once every 400 years. The red numerals on this dial — 2100, 2200 and 2300 — show when leap years will not occur. The center-mounted hand also indicates the year, but on a bigger, easier-to-read, 50-year scale.

The practical advantage of this watch over a perpetual calendar is modest, but it is truly fascinating how Andersen presents all the quirky rules of the Gregorian calendar in mechanical form. Andersen developed and made the calendar mechanism in-house. The movement's base is the somewhat less prestigious but still reliable ETA 2892. The price of this watch in platinum (\$55,000) is less than the perpetual calendar from Audemars Piguet.

The time is set using the crown. If the watch has not been worn for several days, the date can be set with the single correction pusher. As with the IWC watch, it is important not to turn the date too far. The consequences are dire: in order to move the date back one day, you would have to run through the entire 400-year cycle by pressing the correction pusher 146,096 times. You would probably do better by simply allowing the watch to rest for one full day.

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TAG Heuer CEO Jean-Christophe Babin discusses the new Pendulum concept watch, why the Monaco V4 took so long, and Seiko's controversial contribution to TAG's new Calibre 1887.

AG Heuer has had a busy 2010. This year it celebrated its 150th anniversary. It brought to market the Monaco V4 watch after six years developing its movement's revolutionary drive belts. At Baselworld, it launched a new concept watch, the Pendulum, which uses four magnets instead of a traditional hairspring to provide torque to make the balance wheel oscillate. And it began production of its first in-house chronograph movement, Calibre 1887, amidst a storm of controversy over TAG's use of a Seiko Instruments Inc. design, Recently TAG Heuer CEO Jean-Christophe Babin discussed all of these topics with

WatchTime contributor Rüdiger Bucher,

editor-in-chief of WatchTime's German-

based sister publication, Chronos.

WT: You presented the Monaco V4 in 2004, but it didn't go on sale until 2010. How long do you expect it will take for the Pendulum to become available?

ICB: We're already farther along with the Pendulum than we were with the V4 in 2004. Then, we had only one prototype and that one just barely ran properly. Its heartbeat was good, but we still had unsolved problems with a few of its drive belts. In 2005, when we decided to take concrete steps toward launching the V4, we more or less had to start all over again. The main problem was the drive belts: we had to determine the best material and calculate the best form so that these components could play their part in the horological power train. It took us five more years

Jean-Christophe Babin

before we were absolutely sure that the quality and precision were just right. We're farther along with the Pendulum.

WT: How many Pendulums have you built so far?

JCB: Six.

WT: How good are the rate results?

JCB: That depends. Some days we're very close to values that could meet the COSC's standards for certified chronometers. But changes in ambient temperature are problematic for the magnet balance and can cause the watch to run a few minutes too fast or too slow. We knew from the start that the metal alloys commonly used for magnets are sensitive to temperature changes and that this sensitivity would adversely affect the rate of the watch. It's not possible yet to introduce this watch on the market with the material that we've been using so far, but we decided to continue working with this technology anyway. All the other technical aspects are promising: for example, the insensitivity to shocks and blows. And the temperature problem is clearly defined, so we're confident that we'll be able to find a solution.

The solution, which we're working on with physicists and technicians, could lie either in innovative alloys or in a kind of temperature compensation for the given alloy. The latter could be done by adding an additional metal to the existing alloy. In any event, as a watch manufacturer we're venturing into a new field, where we need to collaborate closely with scientists. This involves basic research. And that means you don't know when you'll find the solution. It could take six months, but it could also take six years.

WT: The V4 calls into question the concept of power transmission via gears. The Pendulum proposes a radical rethinking of the rate regulator. Did TAG Heuer intend to challenge traditional watchmaking methods?

JCB: As far as the Pendulum goes, we believe that balance springs will continue to play an essential role in the future. But at the same time, we want to prove that other methods of regulation are feasible —



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not to replace conventional regulators, but to augment them. It was the same with the V4. The drive belts weren't intended to replace traditional watchmaking with wheels and pinions, but to supplement them. It's an opportunity for us to show what's possible in the field of haute horlogerie. But this technology isn't meant for producing large numbers of watches. That's why we manufactured only 150 of the Monaco V4.

The third theme that we're working on right now is the power source, that is, the barrel and the mainspring. But we don't intend someday to make watches without balance springs, without wheels to transfer the power, without jewels, and with a new type of power transmission. Instead, if and when the situation arises, we want to be able to use drive belts or a magnet balance. We want to show that there are alternatives. We want to master these alternatives and put them — at least partly — into "ordinary" watches.

WT: Do you have an example?

JCB: Why shouldn't there be a chronograph movement that also uses drive belts in addition to traditional wheels and that relies on ball bearings instead of conventional jewels? Perhaps we could put those ideas into practice in our 1/100-second chronograph? At such high speeds, belts could play a more effective role than wheels. This doesn't mean that there would be nothing but belts throughout the entire

"WE'RE ALREADY
FARTHER ALONG
WITH THE
PENDULUM THAN
WE WERE WITH
THE V4 IN 2004."

movement. Perhaps we could use them only for the chronograph mechanism.

The situation with the magnets is similar. Maybe we could install them elsewhere in the movement as well, not solely in the balance. After all, a magnetic field is a kind of energy source. The intensity of the magnetic field is also a critical factor. Our balance oscillates at a pace of 43,200 semi-oscillations per hour. With stronger magnets, we could increase the speed tenfold. Perhaps such powerful magnets could also be used as a power source.

WT: So you're exploring new ground between watchmaking and science.

JCB: Exactly. We could never have built the V4 if we had relied solely on the art of classical watchmaking. Collaboration among mathematicians, physicists and watchmakers was crucial. For example, consider the drive belts with their minuscule teeth. To accomplish something like that, you simply must work with other branches of industry — and with mathematicians to calculate the elasticity, the length and the thickness of the belts. Watchmakers don't come into the picture until it's time to insert the belts into the movement.

The challenge for our Pendulum was to use four little magnets to generate a stable magnetic field that would be capable of subdividing the incoming energy so that the balance would oscillate at the desired frequency. That's six Hertz or 43,200 semi-oscillations per hour now, but it could also be 36,000 or 72,000 or perhaps even 360,000. You've got to calculate that; you can't try it out empirically. For the V4, we had to master the material that the toothed belts are made of. It had to be made useable in the context of watchmaking. When belts of this kind are used in micro-medical applications for example, in a drill — a speed difference of, say, five percent is insignificant. But that would have fatal consequences for the precision of a wristwatch.

WT: Who conceived the idea of using magnets for a watch's balance?

JCB: Thomas Houlon, who is in our marketing division. He was wondering if there was a way to take magnetism, which is es-

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sentially deleterious for a mechanical watch, and put it to positive use in a movement. One Monday morning four years ago, he came to work with a wooden model he'd built. He had put magnets on a balance that oscillated back and forth between two additional magnets mounted on the sides of the model. That was his original idea, which we then passed along to the people in our research-anddevelopment department. The magnets are now no longer on the balance's hoop, as they were on Houlon's model, but have been relocated onto its staff. Then we had to determine how large, how powerful and how far apart from one another the magnets would need to be.

WT: You introduced the V4 concept watch in 2004, but soon realized that you wouldn't be able to produce it as planned. That must have given you a few sleepless nights, especially since many doubted whether the watch would ever be sold. How did you begin finding a solution?

JCB: There were no prior experiences in watchmaking that we could rely on. We had to consult mathematicians and physicists. It became clear that we would need to put teeth on the drive belts, so we started looking for suitable suppliers. At the same time, we needed the belts and their teeth to be much smaller than the ones used in medical technology. The elasticity of the material was critical too. If it's not sufficiently elastic, the belts jam; but if it's too elastic, the precision suffers. Ultimately, we

found a solution that relies on a metal belt surrounded by a polymer and on teeth cut into the belt with a cold laser. Those two belts are positioned on the back side of the watch. The belts on the front have no metal inlay and consist solely of the polymer.

We gained many new experiences in the course of this process. In watchmaking, trial and error is the method ordinarily used for developmental work: you make various prototypes, you change various details, and you gradually come closer and closer to the ideal situation. But that's not the approach we took for the V4 and the Pendulum. We calculated everything, just as aircraft engineers do, because they've got to be certain that everything is exactly right before the new model makes its maiden flight.

WT: It's costly to develop watches like the V4 and the Pendulum. How will you make these investments pay off?

JCB: I believe that at some time or other, every great brand must devote its efforts to projects whose ultimate results are not entirely predictable. A small business can't afford to do that. But a big operation like TAG Heuer, which ranks among the world's largest manufacturers of luxury watches, must also be active in areas outside its core competency and must dare to make investments that don't promise to generate immediate profits. In the worst case, doing this improves your knowhow. But in the best case, you blaze new trails for industrial manufacturing. That's the advantage of size: you can offer your shareholders the likelihood of profits, you can provide commercial products for a large clientele, and you can explore new dimensions in R&D. We're not obligated to solve the temperature problem within six months' time. We're not under time pressure. Our company gains new experiences by working on this project and by collaborating with external experts. That's very valuable and stimulating. Unlike a traditional factory, we aren't under quite so much pressure from the sales division, which always wants finished products that can be delivered as quickly as possible. We continue to earn our money with large-series models like Aquaracer, Carrera and Grand Carrera.





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BE A PLAYER



WT: You introduced your new chronograph Calibre 1887 in December 2009. The movement quickly sparked discussions among connoisseurs when it became apparent that the base caliber came from Seiko, a fact that you hadn't made clear right from the start. Could you clarify this issue now: exactly which parts of this caliber do you make yourself and which parts come from Seiko?

ICB: Seiko sold us the rights to the intellectual property. The background is as follows: Seiko applied for patents for a project in the late 1990s; based on these patents, Seiko Instruments, which is part of the Seiko Group, developed a genuine manufacture movement, which it produced in very small numbers in Japan. Seiko sold a few watches with this caliber around the year 2000 solely in Japan.

When we began looking for options for constructing our own chronograph, we had to orient ourselves according to various specifications. Our movement would have to be an integrated chronograph caliber with a column wheel, but not like Zenith's El Primero and not with a pace of 36,000 semi-oscillations per hour. It would have to differ from the chronograph movements that we'd already used and we also wanted it to be

"WE WANT TO PROVE THAT OTHER METHODS OF REGULATION ARE FEASIBLE; NOT TO REPLACE CONVENTIONAL ONES, BUT TO AUGMENT THEM."

slimmer than the Valjoux 7750. These specs resulted in technical requirements that were very similar to the ones described in Seiko's patent documents. So instead of starting from square one and reinventing the wheel, we contacted Seiko and asked them if we could purchase certain elements of the intellectual property rights to this caliber. That would enable us to save two or three years' time. The performance of the watches that Seiko had manufactured for the Japanese market was very good and the construction was exactly what we needed.

Nevertheless, after we'd reached an agreement with Seiko, we still had to industrialize everything anew. There's a big difference between making a few thousand units via manufacture work as Seiko had done in Japan on the one hand, and our plans on the other hand, which envisioned producing tens of thousands of calibers per year. So starting with the patent, we proceeded, as it were, from a blank page, organizing the entire construction according to our planned production. As a result, our movement differs from Seiko's caliber in many important details, for example, the diameter, the height, the base plate and the bridges. And unlike Seiko's escapement, ours is



TechnoMarine

GENEVE



W. Mindig

supplied by Nivarox. The two calibers also differ with regard to the production process and the machinery. So, although our caliber is constructively based on the same ideas as Seiko's, it's nevertheless a genuine TAG Heuer caliber. And needless to say, it's "Swiss made."

WT: Which components do you make and which parts does Seiko deliver?

ICB: Among other parts, we produce the base plate, the bridges and the inner portion of the rotor. In addition to that, we also collaborate with 22 suppliers. One of them is Seiko Instruments, from which we order some of the stamped parts. The other 21 suppliers are all Swiss, for example Kif for the shock absorbers and Nivarox for the escapement. Fleury, one of Switzerland's best manufacturers, produces the machines that we use for our own production. They deliver to us the machines for dry-milling brass components such as plates and bridges. By eliminating the use of oil, we don't need to cleanse the parts between two sequential processing steps: that saves time and money, which is an important factor for big-series production like ours.

WT: How many Calibre 1887 watches will you make in 2011?

JCB: Next year, I expect, we'll make

30,000 movements. Over the midterm, we plan to boost that figure to 50,000.

WT: What percentage of your movements do you still order from ETA and which companies are your other suppliers?

JCB: We currently order only slightly more than 50 percent of our movements from ETA. That figure was 99 percent a few years ago. When [the late Swatch Group chairman, Nicolas G.] Hayek announced a few years back that he planned to reduce deliveries of ETA movements to other brands, we had to look for other potential suppliers. One of them is Zenith: Caliber 36, which is based on El Primero, sells well, above all in this price class. And from the start, we strongly supported Sellita's project of developing its own movements. We also resumed collaboration with Dubois Dépraz, with which Heuer and Büren had

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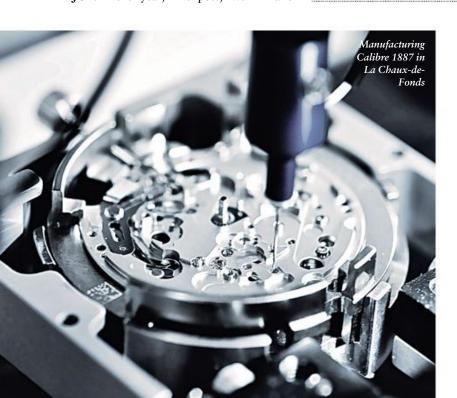
n Du Büren developed the automatic chronograph Caliber 11 in 1969. Today, all Monaco chronographs run with Dubois Dépraz modules. Soprod delivers the movement for our Grand Carrera GMT. And we're starting with our own Calibre 1887. At present, we're the company with probably the widest base of movement suppliers. This ensures that we'll be able to meet our production quotas and to grow, and it also gives us a broad diversity of movements. Incidentally, the situation is similar with our quartz movements. In the past, we had ordered them exclusively from ETA; now we also buy them from Ronda. And with Caliber S, we have our own quartz caliber.

WT: You've been at TAG Heuer's helm for nearly a decade. How would you describe the changes that have transpired since you took command?

ICB: Many things had already changed in the 1990s. TAG Heuer, which had still been a small business in the 1980s, developed into an important player in the watch industry in the '90s. The focus at that time was on sport watches, primarily with quartz movements, and marketing played a decisive role. Then I sought to expand the horological competence, especially in the field of mechanical watchmaking, because above a certain price, customers simply insist on mechanical movements. It's like the auto industry: starting at a particular price level, a customer expects a six-cylinder engine. And in even higher price echelons, it has to be an eight- or 12-cylinder engine.

WT: TAG Heuer produced 750,000 watches per year in the mid-1990s. The total declined afterward because you made more mechanical watches and the average price increased. Prior to the recession, the number of watches manufactured had risen again. How many watches does TAG Heuer make each year?

JCB: We don't publish exact statistics, but I can say that our annual production is between 500,000 and one million. It's not so far from the totals we reached in the 1990s. Of course, because of the crisis, last year's figure was under 700,000. But in a good year, we come close to equaling our best performance.



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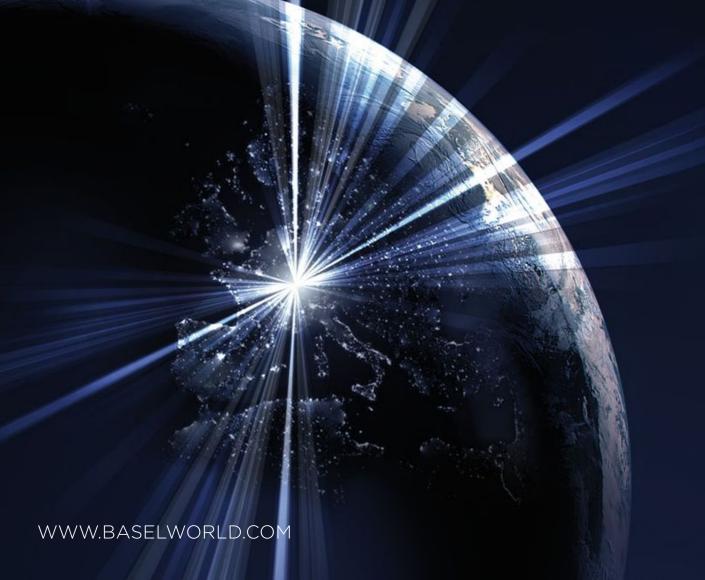
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M.CH

THIS YEAR'S sports-watch section presents more than 50 watches, ranging from multifunction quartz models priced at \$150 to one extremely complex chronograph that weighs in at nearly a quarter of a million dollars. You'll find in-depth tests of watches from Breitling, Mühle-Glashütte and Alpina and profiles of the sports-watch manufacturers Casio, Bremont, Anonimo and one very new newcomer, the divers'-watch company Ralf Tech. As we do each year, we have also compiled a showcase of new sports watches loaded with interesting features and functions. And, as a companion piece to our Breitling test, we offer a glimpse at how Breitling makes its B01 chronograph caliber, its first in-house movement.

SPORTS WATCHES

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Rolex

The Explorer from Rolex has been updated. It now has a 39-mm case, 3 mm larger than the old version. There have been other, subtle changes in the design, including moving the name "Explorer" to the top of the dial from the bottom. The watch contains Caliber 3132, which is equipped with an in-house Parachrom hairspring. The case is made of 904L steel and is water-resistant to 100 meters. The dial and hands are luminous. The Explorer has an Oyster-style bracelet with an Oysterlock clasp and an Easylink comfort extension link. Price: \$5,625.

Jaeger-LeCoultre

Its name is as impressive as its price (\$241,000). Master Compressor Extreme LAB 2 Tribute to Geophysic from Jaeger-LeCoultre, containing the in-house Caliber 781, is a highly unorthodox chronograph/GMT developed for wear in extreme environments. Among its unusual features is a "function selector," a pusher in the crown that enables you to choose what operation you want to perform: setting the GMT function and date (one push of the pusher), setting the time (two pushes), or winding (three pushes, which return the function selector to its standard position). The crown is never pulled out, so dirt can't enter the watch through the crown hole. Another noteworthy feature is the jumping chronograph minutes counter, at 12 o'clock, which the company says is easier to read than a standard minutes counter. Yet another is the power-reserve indicator, also designed to be read easily in extreme conditions. It consists of a big semicircle, running around the top half of the dial, which turns red as the power reserve (60 hours) comes to its end. The watch's insides are also unusual: the escape wheel, lever and hairspring are made of silicon, which in addition to its other advantages (low friction, no need for lubrication), is nonmagnetic. The gear train also resists magnetic fields, due to the special alloy from which it is made. The watch itself, made of a titaniumvanadium alloy, is part of the company's Master Compressor series, and was named after a Jaeger-LeCoultre watch from 1958, the Chronomètre Geophysic, which was extremely resistant to shocks and to magnetic fields. The company calls that watch "the mother" of all its rugged sports watches.





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Breguet

The self-winding Marine Royale 5847 from Breguet is the perfect accessory for the tightly scheduled sports enthusiast: it has an alarm to keep him running on time. The alarm can even be operated under water, to a water pressure of 300 meters (the case is water-resistant to the same level). Breguet launched the watch last year in rose gold and this year has brought out a white-gold version. The wearer sets the alarm using the rubber-covered push-piece at 4

o'clock, which turns the center-mounted, triangle-tipped alarm hand, and turns the alarm on and off using another push-piece at 8 o'clock. The alarm has a power-reserve indicator between 9 and 11 o'clock. A window at 12 o'clock shows whether the alarm is on or off. The watch is 45 mm in diameter and 7.45 mm thick and has a sapphire caseback. The hands are luminous. The dial is made of gold and engraved by hand using a rose engine. Price: \$42,900.





Concord

The futuristic C1 MecaTech is a new variation of Concord's C1 Chronograph, introduced in 2007 when the company completely revamped its product range. It's distinguished from other C1 Chronograph models by the grille in the center of its dial, whose pattern echoes the crisscross design of the dial's outer portion. The watch contains a COSC-certified automatic ETA Valgranges movement, which has a frequency of 28,800 vph and a 48-hour power reserve. Like all C1 Chronographs, this one has an unusual running seconds display at 9 o'clock, which incorporates a rotating disk rather than a hand. The case, 44 mm in diameter and 16.7 mm thick, is made of steel with a black PVD coating. It is water-resistant to 200 meters and has a transparent back. The bezel is rose gold and has eight black rubber segments. The crystal is made of sapphire and is 3.3 mm thick. It has nonreflective coating on both sides. The indexes and the hours and minutes hands have a Super-LumiNova coating. Price: \$19,900.



Showcase 2010



I Hamilton



This pilots' watch from Hamilton, the X-Landing, has an unusual ability: it can calculate the distance from a plane's destination that the pilot needs to start his descent, assuming a standard descent angle (3 degrees). The pilot turns the crown at 10 o'clock until the plane's cruising altitude in feet (divided by 100) appears in the window at 9 o'clock. In a window at 3 o'clock, the pilot can then read the distance from his destination that he must begin his descent. In pilot lingo, this distance is called "top of descent" or "TOD." The watch, a chronograph with GMT function, contains the ETA 7754. The case, 44 mm in diameter, is PVD-coated stainless steel. The watch is being manufactured in a limited series of 999 pieces. Price: \$2,845.

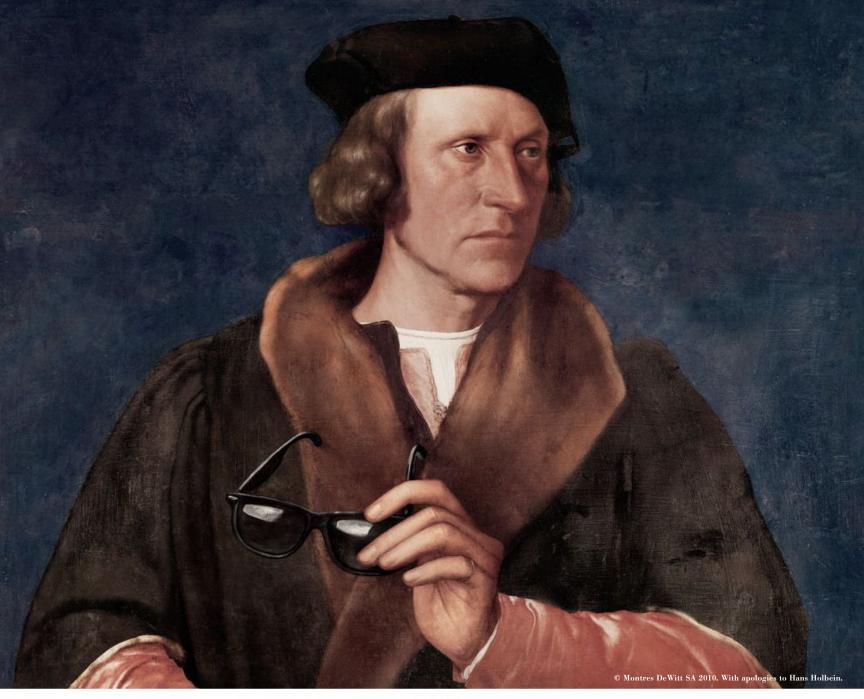
I Corum

This is the latest model that Corum has launched to mark the 50th anniversary of its Admiral's Cup watch. It's called the Admiral's Cup Chronograph 44 Centro Mono-Pusher. The watch, being manufactured in a limited edition of 555 pieces, has a lever at 2 o'clock that controls the chronograph's stop, start and return-to-zero functions. One of its unusual features is its chronograph minutes counter, which is a center-mounted (the source of the word "Centro" in the watch name). black-and-red hand rather than the subdial used on most chronographs. A running-seconds subdial sits at 9 o'clock and a dial aperture at 3 o'clock. The movement, an automatic that Corum has labeled the CO961, is COSC-certified. It has a frequency of 28,800 vph and a power reserve of 48 hours. Its rotor is engraved with the brand name and has a black PVD coating. The case, which has the 12 sides that are a hallmark of the Admiral's Cup design, is 44 mm in diameter and made of titanium with a PVD coating. It is water-resistant to 100 meters. The hands and markers are coated with black Super-LumiNova. The dial flange bears 12 semaphore signals, which stand for the numerals 1 through 12, and are another hallmark of the Admirals Cup. Price: \$7,900.



Blancpain

The Fifty Fathoms, Blancpain's wellknown diving watch, is available in a new version called the Fifty Fathoms Complete Calendar Moon Phase Flyback Chronograph. The watch's calendar has two unusual features. First, it can be adjusted at any time of the day, including right before midnight, without risking damage to its components. Second, adjustment is accomplished by means of correctors — operated by a fingertip alone and not requiring a special tool - that are hidden under the lugs rather than on the side of the case, where they would detract from the watch's appearance. (Blancpain introduced this hidden-lugs feature in 2004.) The chronograph has a column wheel and vertical clutch. The case is made of stainless steel and is 45 mm in diameter and 17.4 mm thick. It is water-resistant to 300 meters. The bezel, which is unidirectional, is made of sapphire, as is the caseback. Price: \$22,400.



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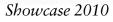


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This quartz chronograph from Bulova (style 96A116), which has a titanium case and bracelet, is an addition to the company's Marine Star sports collection. Some of its design de-

tails were inspired by a cockpit instrument panel. These include its white Arabic numerals; the subdials stacked one atop another (a 24-hour counter, 30-minute count-

er and running seconds); the small screws surrounding the subdials, which look like the screws that affix flight instruments to the instrument panel; and the bright orange and green accents. The hands

and markers are luminous and the bracelet has a folding clasp. The case has a screwdown back and is water-resistant to 100

meters. Price: \$499.

Longines

Black ceramic combines with steel to create a sporty-elegant look in Longines's Column-Wheel Sports Chronograph. The watch contains the self-winding ETA Valgranges A08.231, which was unveiled at Baselworld last year. The movement is 30 mm in diameter, 7.90 mm thick and has a power reserve of 54 hours. The case has a screw-down back with viewing window and is water-resistant to 100 meters. The 30-minute counter is at 3 o'clock and the 12-hour counter at 6 o'clock. The bracelet, which has black ceramic center links, has a triple-folding clasp.





The new Vintage collection from Bell & Ross harks back to the pilots' watches of the 1940s. It includes this model from the Vintage Heritage line, which features black PVD-coated, 41-mm cases, black dials and beige, luminescent hands and numerals. The watch contains an automatic ETA 2895 movement. (There is also an automatic chronograph version fitted with the ETA 2894.) The crystal is domed, like those on watches from the 1940s, and is made of sapphire with nonreflective coating. The watch is waterresistant to 100 meters. Price: \$2,900.





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I Panerai

Last year, Panerai launched a trio of inhouse movements, the 9000, 9001 and 9002. It is the first, and simplest, of these that powers the new Luminor Marina 1950 3 Days Automatic. The movement owes its three-day power reserve to its twin barrels. The case is 44 mm in diameter and made of polished steel; the crown protector has a brushed finish. The dial has Panerai's standard "sandwich" construction. The numerals and hands have a luminous coating meant to look like the radium paint used on Panerai's military models from the 1940s, which turned an ecru color as it aged. (The paint, called Radiomir, gave Panerai's Radiomir watch models their name.) The crystal is 2.6 mm thick and has a nonreflective coating. The case has a transparent sapphire back and is water-resistant to 300 meters. The watch comes with a spare strap and two tools for changing it. Price: \$7,400.



watch from Mido is designed to withstand the rigors of the deep. In addition to its heliumrelease valve, located at 10 o'clock, it has a twopart steel case that is water-resistant to 300 meters, a rubber strap with divers' extension and broad hands and indexes, coated with Super-LumiNova to make them visible in murky waters. The bezel, which rotates in one direction, has ridges that make it easy to grasp. The watch contains the automatic ETA 2836-2 movement. which has a frequency of 28,800 vph and a power reserve of 40 hours. Price: \$1,270.



Richard Mille

To herald its role as main sponsor and official timekeeper of the Le Mans Classic, the biannual race featuring vintage cars that have raced in the 24 Hours of Le Mans race (or are the same models as those cars), Richard Mille has brought out a limited edition RM 010 Le Mans Classic watch. The dial features the Le Mans Classic colors, green and white, and has a 24hour subdial, at 2 o'clock, a reference to the 24 hours' duration of the Le Mans Classic. The watch has an automatic, skeletonized movement with what the company calls a "variable-geometry" rotor, which features two weights that can be moved toward or away from the rotor's center to decrease or increase the rotor's winding efficiency. The case is 48 mm by 40 mm and is water-resistant to 50 meters. There are 80 pieces in rose gold (\$65,000), 30 in white gold (\$70,000) and 40 in titanium (\$60,000).

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IGergé

The 12-year-old Gergé Swiss Timepieces recently launched this automatic chronograph, the Type-M2 Metropolis, which contains an ETA 7750. The watch shown here is steel (there is also a titanium version) and 45 mm in diameter. The case combines satin and polished finishes. The dial, decorated with Geneva stripes, has applied numerals with accents in Super-LumiNova. The crystal is curved and made of sapphire. Price: \$6,600.





Movado

The Sub-Sea collection of sports watches, launched last year, has been expanded with this retrograde chronograph model. The watch has a Swiss quartz movement. There are three retrograde displays: a 60-minute counter, a five-minute counter and an unusual, center-mounted retrograde seconds hand that sweeps through an arc on the bottom half of the dial. There is a runningseconds subdial at 6 o'clock. The case is 42 mm in diameter and made of steel and the bezel, which does not rotate, is aluminum. In addition to the black-dial-and-bezel version shown here, the watch also comes in blue. It has a screw-down crown and is water-resistant to 200 meters. The markers and hands are luminous. The bracelet combines polished and satin-finished links and has a folding clasp. Price: \$1,290.

Baume & Mercier

The sporty Riviera from Baume & Mercier has grown mightily over the years: this Riviera Magnum XXL automatic chronograph is a hubcapsized 45 mm in diameter. The case is made of polished and satin-finished steel and, thanks to its screw-down back and crown, is water-resistant to 200 meters. The dial has an opaline finish; the Roman numerals and hand are coated with Super-LumiNova. The strap is made of vulcanized rubber and has a triple-folding clasp. Price: \$4,290.



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I Tutima

The 629-51 from Tutima is a divers' watch that is water-resistant to 300 meters and has a unidirectional bezel. It contains the automatic ETA 2836-2 caliber, which has a 38-hour power reserve. The case, 43.5 mm in diameter, is made of titanium with a PVD coating. The crystal is sapphire with a nonreflective coating on the inside. The hands and markers are luminescent. The strap is made of rubber and has a security buckle and an integrated divers' extension. Price: \$1,700.

I Technomarine

This model from Technomarine's UF6 collection, the UF6 Magnum, which contains a Swiss quartz movement from ISA, has a GMT function indicated by a center-mounted hand and 24-hour scale. The case is made of PVD-coated steel; the bezel and case sides are aluminum. The watch is 45 mm in diameter and water-resistant to 200 meters. The crystal is sapphire, coated with nonreflective treatment. The strap is rubber. Price: \$1,350.





Suunto

The M5 from Suunto is like a personal trainer for the wrist: after you enter your age, weight, and other pertinent personal data, it prescribes an exercise program to help you meet your fitness goals. As you're exercising, it tells you how many calories you've burnt, how much longer you must exercise and, with the help of the heart monitor that comes with the watch, your pulse rate. When you're finished exercising, the message "good workout!" appears on the LCD display. The watch can be used with Suunto's "foot pod" and "bike pod" accessories, which monitor your distance and speed as you are running, walking or biking. The watch also lets you download various training programs from the fitness-training Web site, Movescount.com. Price: \$209.

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IUTS

The German sports-watch company UTS has a new divers' model with a GMT function, the 1000M GMT. The watch contains the ETA 2893-2, which has a 42-hour power reserve. As its name implies, the watch, being made in a limited series of 400 pieces, 200 with sapphire casebacks and 200 with solid ones, is water-resistant to 1,000 meters. The case is made of steel (it's cut from a single block of metal at the company's Munich factory, where UTS watches are also assembled); the caseback and lugs are affixed by the hexagonal screws that are the brand's hallmark. The hands and markers are coated with Super-Lumi-Nova. The crystal is made of sapphire and has nonreflective coating on one side. Price: \$3,250.



I Milus

The Zetios Chronograph from Milus, which contains a Swiss automatic movement, has a big date display at 12 o'clock. The small seconds subdial is at 3 o'clock, the minutes counter at 9 o'clock and the hours counter at 6 o'clock. The markers and hands are coated with Super-LumiNova. The watch has a curved sapphire crystal and a sapphire caseback through which you can see the skeletonized rotor in the form of the Milus logo. The case is steel and 45 mm in diameter. Price: \$5,200.



Ball

The Engineer Hydrocarbon Magnate GMT from Ball Watch incorporates two types of luminosity. The hands and numerals on the dial are illuminated by tritium gas tubes; the numerals on the 24-hour bezel, by which you can read the time in a second time zone, are coated with LumiNova. The watch contains a COSC-certified, automatic ETA 2893-2, enclosed in a Faraday cage to protect it from magnetism. The watch is also resistant to shocks up to 7,500 Gs (the crystal, made of sapphire and coated with nonreflective material, is a hefty 4 mm thick), and its crown is protected by the company's patented crown protector, a hinged arm that can be released by the push of a button. The case, 40 mm in diameter, is made of steel and is water-resistant to 100 meters. Price: \$2,899.





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I Kobold

Despite its stealthy, matte-black dial and bracelet, this watch from Kobold, the Phantom Black Ops, is an eye-catcher at night because of its luminous green hands and markers. The watch contains the ETA 7750. The case, made of steel (in Pittsburgh, as is noted on the dial) and 41.3 mm diameter, has a DLC coating, as does the bracelet, which for a limited time only, until January, is being offered in titanium (after then it will be available in steel). The watch is water-resistant to 300 meters when the crown and chrono pushers are locked into the case, and to 30 meters when they are not. The watch has a 10-year warranty. As part of the limited-time offer, two additional straps will come with the watch, one rubber and the other nylon. Price: \$4,650.





l Citizen

The new Titanium Collection Citizen includes chronograph, the Eco-Drive Titanium Chronograph, which is powered by light and hence does not require battery changes. The chronograph times to the 1.5-second and runs for up to 60 minutes. The watch shows 24-hour time on a subdial at 9 o'clock. The crystal is made of sapphire, and the case, water-resistant to 100 meters thanks in part to its screw-in back, is 43 mm in diameter. The watch also comes in a strap version and a non-chronograph model. Price: \$450.

IRGM

The Professional Diver Model 300 from the American brand RGM, based in Lancaster County, PA, boasts a water-resistance level of 2,500 feet (762 meters), thanks to its sturdy case, its five-millimeter-thick sapphire crystal and the double gas-

kets that seal its crown and caseback. The watch, which is made of steel, contains the automatic ETA 2892. The case is 43.5 mm in diameter and 17 mm thick. The hands and markers are luminous. The strap is nylon and rubber. Price: \$3,500.



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I Equipe

The new, automobile-inspired Equipe brand (based, appropriately, in Detroit) includes this model called Octane, which shows the time in two time zones on its two separate dials. It contains two Citizen/Miyota quartz movements. The dials are meant to look like the gauges on a dashboard. The hands and markers are luminous. The watch, 45 mm in diameter, is water-resistant to 100 meters and is fitted with glare-proof, mineral crystals. The strap is silicone. Price: \$299.





The Sportura collection, inspired by the world of motor sports, marks its 10th birthday this year with the launch of the collection's first automatic chronograph (until now all of its chronographs have been quartz, some of which are Kinetic, i.e., motion-powered). It's called the 8R28 Automatic Chronograph and it contains, as that name suggests, Seiko's well-known 8R28 caliber, which has a column wheel and vertical clutch. The 8R28 also has a one-piece, three-pointed hammer that allows all three chronograph hands to re-set in perfect unison. It has a 45-hour power reserve. Like other Sportura watches, this one, with its dials and bright orange details, is meant to look like a dashboard. The calendar wheel, spanned by spoke-like hour indices, resembles a racing-car wheel. The watch has a sapphire back that shows off the movement's black winding rotor. The case is made of steel and is water-resistant to 100 meters. The watch is being manufactured in a limited edition of 1,000 pieces, 40 of which will be available in the U.S. market. Price: \$2,995.



Hublot

The launch of the Unico movement this year marked Hublot's elevation into the ranks of watch manufactures: companies that make at least one movement in-house. That movement, an automatic flyback chronograph with a silicon escape wheel and lever, powers the King Power Unico All Black. The watch is made from a mix of materials. The case, which is 48 mm in diameter, is made of micro-blasted black ceramic. The bezel is ceramic and black rubber. The crown and pushpieces are titanium with a black PVD coating and black rubber inserts. The base of the multi-layer dial is carbon. The name "All Black" can be taken literally: even the Super-LumiNova on the dial and hands is black. The watch is waterresistant to 100 meters. It has a rubber strap with ceramic-and-steel buckle. The watch is being manufactured in a limited edition of 500 pieces. Price: \$18,900.







For men who dare venture beyond the obvious. The Grand Opus. The first ever automatic chronograph with pantograficly hand skeletonized movement. Originally only in XL with onion shape crown and sapphire see through back.

Clever men know true beauty lies in the details.



PHOTOS BY NIK SCHÖLZEL

The newest Breitling Superocean sury and sand the risons of lest.

Ages in Watch Finness test.

The newest Breitling Superocean watch Finness test.

BY ALEXANDER KRUPP





reitling's first Superocean model, introduced in 1957, was water-resistant to 200 meters. The newest version of the watch, which Breitling unveiled at Baselworld this year, has a water-resistance level of 1,500 meters. Even though it can be worn at depths to which only professional divers can sink — the watch even has a helium-release valve, for use in a diving chamber — we're guessing that most of its owners will think of it as an all-purpose sports watch for everyday wear. It is in that context that we tested the watch.

There is much to praise about the Superocean, starting with its case, 42 mm in diameter, which has several features that are standard for the Breitling brand: a smoothly ratcheting bezel, high-quality polishing, and an elaborate logo embossed on the caseback. The bezel, which rotates in only one direction, is fitted with a distinctive, molded-rubber ring insert in which four numerals and eight indexes, all satin-finished, have been smoothly inlaid. The finishing is impeccable. The rubber tends to attract dust, and the metal markers and polished case sides quickly show scratches, but Breitling could not have prevented these problems.

The watch is easy to operate. The bezel and crown guards pose little hindrance when the wearer unlocks the large, fluted, screw-down crown, and the crown engages nicely in its two positions. The crown stem is very sturdy and does not move at all when the crown is pulled out. The watch's movement, the ETA 2824, has a hack mechanism and a quick-date-set feature. The pronounced fluting on the bezel means the wearer can turn it easily, even when wearing gloves. The bezel ratchets smoothly in half-minute increments.

The dial has pluses and minuses. The three oversized markers at 6, 9 and 12 o'clock, the wide hands and the extremely large, slanted numerals give the watch a dynamic appearance. The large numerals and markers do, however, make the dial look crowded, and the wide bezel, which reduces the dial's size and visual impact, contributes to this effect. The date window, which serves as an hour marker at 3 o'clock, is nicely placed and

THE WATCH
WAS SO
PRECISE IT
EARNED A "10"
IN THE
RATE RESULTS
SECTION OF
OUR TEST.

Pros

- + Highly water-resistant case
- + Perfect rate results
- + All-around superb finishing
- + High luminosity

Cons

- Somewhat overloaded dial
- Bezel is difficult to read



its size is compatible with those of the other hour markers. Reading the date can nonetheless be hard because the numerals on the date ring are quite thin. The problem is worst for the numerals 10 through 19 because the 1 is very close to the date window's edge.

The time is generally easy to read, even though the minute hand does not extend to the minute track. Because the

markers and hands are so big, they provide plenty of space for luminous coating and thus shine brightly in the dark. Divers can make sure the watch is still running by looking at the seconds hand, whose luminous tip makes it visible in dark and murky water. The bezel isn't as handy for timing a dive as it could be, though, because it does not have a luminous dot to indicate the start of the dive

Breitling has modified a highly accurate ETA 2824 for use in the Superocean.

SPECS

BREITLING SUPEROCEAN

Manufacturer: Breitling SA, Schlachthausstrasse 2, CH-2540 Grenchen, Switzerland

Reference number: A17364-1022

Functions: Hours, minutes, seconds; date; hack mechanism

Movement: ETA 2824, automatic, COSC-certified chronometer; 28,800 vph, 25 jewels, Glucydur balance, Etachron regulating system and eccentric screw; Incabloc shock absorber, power reserve = 40 hours, diameter = 25.6 mm, height = 4.6 mm

Case: Stainless-steel case, curved crystal with nonreflective treatment on both sides, fully-threaded stainless caseback, screw-down crown, unidirectional divers' bezel, automatic helium-release valve, water-resistant to 1,500 meters

Strap and clasp: Rubber strap with stainless-steel safety folding clasp and quick extension

Rate results:

(deviations in seconds/day):

Dial up:	+
Dial down:	+
Crown up:	+;
Crown down:	+,
Crown left:	+,
Crown right:	+
Greatest rate deviation:	
Average deviation:	+1.
Average amplitude:	
Horizontal positions:	291
Vertical positions:	297

Dimensions: Diameter = 42 mm, height = 15 mm, weight = 147 g

Variations: With silver, yellow, red or blue minute track (\$2,995); with pronged buckle (\$2,695); with perforated rubber strap/deployant buckle (\$2,995), with stainless-steel bracelet (\$3,085)

Price: \$2,995

THE 4-MM-THICK STRAP IS A SUITABLE COMPANION FOR THE HEFTY, 15-MM-THICK CASE.

The case has a helium-release valve at 10 o'clock.



SCORES

BREITLING SUPEROCEAN

Strap and clasp (max. 10 points):

The rubber strap has a simple but solid design. The simple folding clasp with safety deployant buttons and quick extension (no divers' extension) is attractive, sturdy and easy to use.

Operation (5): The screw-down crown is easy to unlock and pull out to the two different positions. The watch has both a quick date set and hack mechanism. The bezel is easy to grip.

Case (10): The highly water-resistant case (1,500 meters) with automatic helium-release valve is nicely finished and the caseback is elaborately engraved.

Scratches are quickly noticeable.

8

Design (15): The sporty design is attractive, even though the extra-large numerals and markers make the dial seem overloaded. Good placement of the date. **12**

Legibility (5): Legibility of the time and date is not ideal. The bezel has no luminous dot or minute markers. The luminosity on the hands and hour markers is impressive.

Wearing comfort (10): The top-heaviness of the case detracts somewhat from the overall comfort.

8

Movement (20): The ETA movement has a Glucydur balance, a high-quality mainspring and COSC certification. Nicely decorated.

Rate results (10): Perfect rates.

Overall value (15): Customers receive the quality they expect at a good price. 13

10

TOTAL: 80 POINTS

(in fact none of the bezel markers is luminous). Nor does the bezel have minute markers within each five-minute increment, so timing a dive to the minute involves some guesswork.

The Superocean is easy to put on and comfortable to wear. It is equipped with a new style of rubber strap called the Diver Pro II, which has a subtle, raised strip along its length. The strap is 4 mm thick, and hence suits the sturdy design of the watch. (The Superocean is also available with the flashier, perforated Ocean Racer

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rubber strap and with a steel bracelet.) The bars in the deployant clasp are sturdy, the locking mechanism operates smoothly and the two buttons that open the clasp work reliably. The strap has an extension that supplies nine extra millimeters of length. It is released simply by pushing inside the clasp. The extension isn't long enough to enable the watch to fit over a wetsuit, but it is adequate for everyday adjustments.

Minor points must be deducted from the watch's wearing comfort because the top-heaviness of the 15-mm-thick-case causes the watch to slip back and forth.

The watch's rate results, on the other hand, were perfect. Our test watch showed a gain of only 1.8 seconds per day and an extremely low positional deviation of just two seconds. Furthermore, there was a mere six degrees' difference in average amplitude between horizontal and vertical positions. The wearing test confirmed the timing-machine results: the watch consistently gained two seconds per day.

Like all movements used in Breitling watches, this one's movement has COSC chronometer certification. Prior to having the movement tested, Breitling fine tunes the escapement, adds a higher-quality mainspring, centers the hairspring, poises the balance and regulates the movement in five positions. (Breitling has designated the movement Caliber 17.)

The decoration is very attractive. The rotor sparkles with côtes de Genève in its center, a gold-enhanced inscription of the Breitling name, and a sunburst finish along its edge. The mainplate and several bridges, including the rotor bridge, have a perlage finish. The barrel features a sunburst finish.

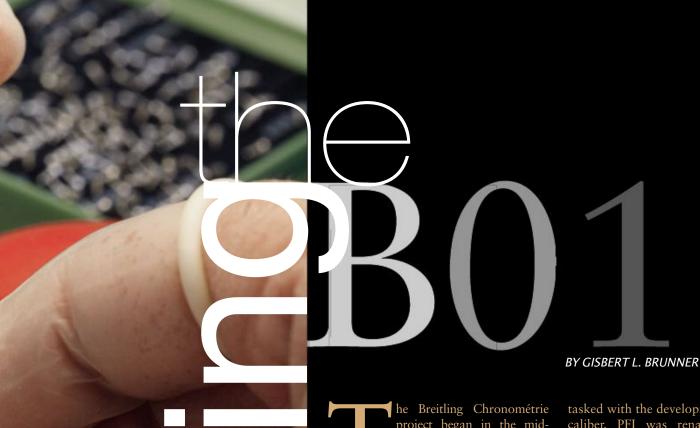
The movement's mostly unfinished screws and untreated edges can be overlooked in view of the watch's manageable price of \$2,995. This isn't an incredible bargain for a three-hand watch with an ETA movement, but it is fair, given the high-quality case, movement and strap. Whether you're swimming, snorkeling, surfing, jet-skiing or diving, you can don the Superocean without fear. Leaving this attractive timepiece unguarded on the beach would certainly put it at greater risk than wearing it would.





Mk II PARADIVE REFINED - UTILITY





project began in the mid-1990s, when Breitling vice president Jean-Paul Girardin decided that all of the brand's future watch movements would be submitted to Switzerland's COSC chronometer-testing authority for testing. This step demanded a new factory, which was completed in La Chaux-de-Fonds in 2001, thus offering ultramodern working conditions for a staff of approximately 150.

At the time, Girardin (who is also an engineer) and his coworkers didn't suspect that the Swatch Group — whose ETA subsidiary provided the movements for Breitling watches — would decide to reduce deliveries of movement kits starting in January 2003 and to deliver nothing but fully assembled watch movements starting in January 2006. After intervention by the Swiss Competition Commission, the phase-out was postponed to start at the beginning of 2009 and finish at the end of this year.

Breitling made good use of the breathing space that it gained from the delay: with the utmost discretion, the company, which had already been becoming more vertically integrated, began developing its own self-winding chronograph caliber. The project began in 2004 with an eye toward the brand's 125th anniversary in 2009. A Breitling subsidiary called Professional Flight Instruments (PFI), with headquarters in Meyrin, near Geneva's airport, was

tasked with the development of the new caliber. PFI was renamed "Breitling Technologie" in 2006.

However, the facilities and manpower devoted to manufacture Caliber B01, launched in 2009, required a significantly larger production facility than the one in Meyrin. To meet that need, the company added 4,000 square meters to its existing 2,000-square-meter space at Breitling Chronométrie in La Chaux-de-Fonds. Located at the edge of a forest, the building provides workspace for 200 employees, whose activities range from research and development, through component production, assembly and fine adjustment, to quality control of the watches, all of which are COSC-certified chronometers. Low humidity and slightly greater-than-ambient atmospheric pressure are maintained in these workspaces, or "gray rooms," where the air is completely exchanged every 10 minutes to prevent dust buildup that could harm the workings of the precise machinery.

BREITLING TAKES the "Swiss made" designation on its dials seriously. All of the components, which are provided by some 40 different suppliers, are made in Switzerland. The work of assembling all movements and watches takes place on Breitling's own premises; only the surface decorations are entrusted to outside specialists.

Of course, Breitling's goal is to become a 100-percent mechanical manu-

facture. Breitling Chronométrie's expanded premises, whose walls are decorated with many works of modern art, extend from T0 (component production, including plates), through T1 (pre-assembly of components) and T2 (assembly and fine adjustment of watch movements), to T3 (completion and quality control of complete timepieces). The management takes practical considerations into account when making decisions about which of the 346 components that together make up manufacture Caliber B01 will be made by Breitling and which will be purchased from outside sources. If the latter are to provide strategically important components, there must be at least two different suppliers that make them. If there are not, then Breitling makes its own, as it does with plates, bridges and calendar disks. This policy required the company to purchase new equipment that can produce multiple components. The automated spark-erosion machinery at the atelier can produce steel parts such as rockers, indexes and springs, but only in small series. Larger orders must come from specialists, such as Dubois Dépraz in the Vallée de Joux.

Breitling sets its own jewels and uses modern semiautomatic machinery to oil the movement parts. The company even uses equipment made by a company called Clinical Laboratory Analysis (CLA), originally developed to analyze blood samples, in the assembly process for the B01. Electronic control mechanisms minimize errors and specially trained watchmakers are on call in case any problems arise.

Breitling's creation of its first *manufacture* movement has received largely positive responses from retailers and others in the watch industry. "With more than 25,000 movements of this type already produced, the error rate has thus far been pleasingly low," says Girardin. More than 95 percent of these new movements passed the COSC's chronometer tests on their first try. The standard that Breitling hopes to achieve is the one set by the legendary ETA 7750, of which less than one percent of those submitted to COSC fail to earn a chronometer certificate.

THE FACILITY in La Chaux-de-Fonds currently produces 50,000 pieces of the B01 each year. While this capacity could increase, any expansion is on hold while Breitling and the rest of the watch industry recover from the recession.

The extensive machine park at Breitling Chronométrie — a mix of traditional and ultramodern equipment — also makes it easier for the company to develop components for pre-series calibers in secret. With this in mind, it seems likely that the B01 won't remain Breitling's only manufacture caliber for long. Asked when and in what form others might appear, Girardin preferred not to answer. Certainly, Breitling will continue to use ETA calibers as base movements in many of its watches; it remains to be seen whether or not Sellita's new SW 500 caliber

will someday serve as an alternative to the nearly identical ETA 7750. O

More than 95 percent of the B01 movements pass the strict criteria of COSC's chronometer test.





Breitling uses ultra-modern machinery to make movement parts.



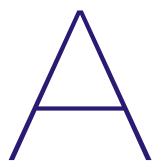
Above and left: designing and making movements at the Breitling Chronométrie facility in La Chauxde-Fonds (far left).

GERGÉ SWISS TIMEPIECES









s all watch collectors know, getting one's hands on an exclusive, limited-edition timepiece presents challenges. Most often, being well informed, well connected and, above all, extraordinarily wealthy are the keys to acquiring the rarest, most collectible models. But not always. In the case of a watch called the MB1 produced by the eight-year-old, London-based watch company Bremont — the only way you'll get your hands on it is to be one of the 7,200 human beings who have survived an ejector-seat launch from an airplane. Then there is another Bremont model, the U-2, with a version offered only to airmen who have piloted a Lockheed U-2 reconnaissance plane for the U.S. Air Force or the C.I.A. To Bremont founding brothers Nick and Giles English ves, they are Brits, and ves, that is their real surname watches such as these are a way to honor the aviators and aviation technology that have inspired the brand. According to Nick English — who, along with his brother, is himself a pilot — they also help to separate the real flyboys from the poseurs.

"I think these guys are fed up with going down to the bar, playing some pool and seeing five other guys, not in their squadron, wearing the same watch as they are, albeit with a different logo on it," he says of pilots and their watches.

Many watch brands make pilots' models, of course, and many of them have been at it far longer than Bremont, but few if any can boast such an intimate connection to aviation, or such a direct, personal link to the events that inspired the watches. The English brothers inherited an interest in aeronautics and mechanics from their father, an aeronautical engineer who in his spare time built planes — and tinkered with old cars, motorcycles, and musical instruments — in his workshop. The elder English also collected watches and restored antique grandfather clocks, and on weekends displayed his aircraft projects at air shows. His sons, as a result, grew up with many of the same interests, hanging around their dad's workshop, learning about flying and the technology behind it, and honing their own mechanical skills on a vintage clock that their father had acquired at an auction. The brothers established a small aircraft-restoration business, which they maintain to this day, and started helping their father at the weekend air shows.

Both English brothers did stints in the U.K.'s RAF (Royal Air Force) Reserves, and while they remained fascinated by aviation and continued to pursue it as a hobby, their early careers led them in a different direction, to the banking industry in London. "We didn't particularly enjoy it," says Nick English, over afternoon tea at New York's Peninsula Hotel. "But then our lives changed dramatically in 1995."





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It was in March of that year that English and his father, practicing an aerobatic routine for an airshow in a T-6 Harvard, were forced to take evasive action when the other plane in the exercise developed engine trouble. Diving into an inverted spin at a low altitude, English piloted the plane out of the way of the other aircraft, but crashed into the ground while avoiding trees. The son was thrown clear of the wreckage and broke 30 bones. The father was not so fortunate: he died upon impact. "That was a tipping point for us in life," says English. "We got out [of banking] and ended up doing something we really wanted to do. And while we already had the aircraft restoration company, the next thing we wanted was to set up a watch brand."

DESPITE THE FAMILY tragedy in which Bremont had its genesis, and despite his own love for vintage aircraft and old clocks, English has never been a prisoner to nostalgia. When he and his brother decided to make their own watches, they agreed that they did not want to simply buy an old brand and resurrect it. "Anyone can go out and buy an old Swiss brand name and say, 'Look, we've been at this for 80 years,' or 150 years, whatever," he says. "Go to a Tourneau store and you'll see any number of brands claiming to have this illustrious, 100-year history, when in fact those brands were dormant for the last 80 of those 100 years. And unless you're buying one with machinery, movement diagrams and so forth, you're really starting from scratch anyway. We don't know what the founders of another watch brand would've wanted, what their vision would be, because they're not around anymore. So we decided very early on that we wouldn't pretend we have this huge history. We would just make some beautifully engineered watches that stand on their own merits."

That decision, however, didn't get the English brothers any closer to choosing the all-important brand name. Neither was excited about putting their family name on the dials — "slightly clichéd, and perhaps difficult to trademark," remarks English — but after nearly three years they still could not settle on the right one. Then one of them recalled a fateful flight that they had made several years earlier, only two years after the death of their father. The brothers were flying an old German Brucker-Jungman biplane, in stormy weather, over northwest France and were forced to land in a pea field, somewhere in the Champagne region. At first, they were worried about the legal implications. As English puts it, "If we'd landed in the U.S. or the U.K., it would not have been a big deal. You apologize to the farmer, have a cup of tea and

AN ENCOUNTER WITH A
FRENCH WWII PILOT
NAMED ANTOINE
BREMONT GAVE THE
BRAND ITS NAME.

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The limited-edition MB1 is available only to those who have ejected from an airplane. off you go. In France, they can impound the aircraft and take the wings off until it's deemed safe to take off. It can become very bureaucratic and quite expensive." Their fears proved groundless when the landowner — a 70-something former World War II pilot named Antoine Bremont — came out to help them, putting the brothers up for two nights as the worsening weather passed and making sure they avoided the red tape before they could take off back to Britain in their aircraft.

A watch from Bremont's MB II collection

There were other aspects of the old farmer that endeared him to the English brothers. "He just reminded us of our father," English says. "He had a workshop with mechanical things strewn all about — engine parts, clock parts and so forth. And we realized his name would look great on a watch dial. It was the closest we could get to honoring our father without actually using his name." The decision was finally made: the watches would be called "Bremont."

FROM THE BEGINNING, the plan was to establish Bremont not as a Swiss brand with British owners and British designs, but an actual British manufacturer, inspired by British watchmaking legends such as John Harrison, Thomas Mudge, George Graham, and George Daniels. However, in the beginning, the brothers had to go where the facilities and the expertise were. They purchased a small workshop in Bienne, where most Bremont watches are still assembled, and purchased parts and movements from Swiss suppliers.

The brothers found an experienced technical director in Peter Roberts, a fellow native of the U.K. Roberts, who trained at the WOSTEP watchmaking school in Neuchâtel, worked for several years at IWC in

Schaffhausen before joining Rolex, first as a watchmaker at its main factory in Geneva, then at Rolex's U.K. subsidiary. He subsequently spent 13 years teaching technical horology in Britain, where two of his students included star indie watchmakers Peter Speake-Marin and Stephen Forsey. Among Roberts's contributions to the Bremont brand was its purist design aesthetic, which emphasizes legibility and tradition over complications and embellishments. Roberts believes that a watch should always be in "three shapes: round, round and round" and the English brothers have stuck to that credo. Big, readable numbers; clean dials;

watches are named, is the world's

foremost maker of ejection seats.



LOT VIEWING

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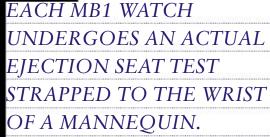
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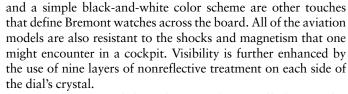
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According to English, "Pilots' watches are all about multitasking. Being a pilot myself, I can tell you that when you're flying an airplane you're doing 15 things at once — checking the airspeed, looking at the manifold pressure, et cetera. You don't have time to look at your watch and wonder if that is or is not the time. A lot of chronographs are very, very difficult to use in the air because you have to take your hands off the stick. Readability is absolutely key, and we felt that a lot of so-called professional aviation watches were getting more and more fancy. We knew from the beginning that we did not want to produce a fashion item. We wanted to make a useable aviation watch."

Designs for all the models are done in Britain, as is much of the finishing on the cases, including the special hardening process the Englishes developed for them. The cases are all designed in what Bremont calls its "Trip-Tick" style, wherein each one has three distinct parts — bezel, middle section and caseback — which allows the use of different materials in the case's construction, different colors in the middle section to identify limited editions, and Bremont's stylized, flowing lugs.

The proprietary hardening process is done by a U.K. company that finishes and treats turbine blades for jet engine manufacturers. It involves heating the case metal to a very high temperature, diffusing it with carbon to make the underlying substrate harder, and then bombarding it with electrons. The result is a finished case that comes in at 2,000 Vickers on the hardness scale, as opposed to 350 Vickers for a standard stainless-steel case, and also, according to English, has superior scratch resistance.

BREMONT WATCHES are all COSC-certified chronometers. They are available in seven basic series. The BC series includes entry-level, three-hand automatic models, each with automatic caliber BE-36AE, based on an ETA 2836. Each has an unusual vertical day-date window at 6 o'clock. Prices start at \$3,750.

Then are three chronograph collections: ALT1-C (\$5,650 on a leather strap, \$6,280 on a steel bracelet), powered by Caliber BE-50AE (a modified ETA Valjoux 7750 with a Soprod module), has a vintage look, with large Arabic numerals and a date window at 6 o'clock. Seconds are on a subdial at 9 o'clock and chronograph minutes on a subdial at 3 o'clock.



ROMAIN JEROME DNA OF FAMOUS LEGENDS



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The ALT1-P series (\$5,250 on strap, \$5,880 on bracelet) has three subdials: seconds at 9 o'clock, 30-minute counter at 3 o'clock and 12-hour counter at 6 o'clock, along with a date window at 4:30. It contains Bremont's caliber BE-53AE, also a modified Valjoux 7750. The ALT1-P models also have a pilot-friendly internal rotating bezel operated by a crown at 8 o'clock.

ALT1-Z watches (\$5,450 on strap, \$6,050 on bracelet) display a second time zone in addition to their chronograph function (the "Z" is for "Zulu Time"). In these watches, which also contain the BE-53AE caliber, the date window is at 3 o'clock, the seconds at 9, 30-minute counter at 12, and 12-hour counter at 6. They also have a red-tipped UTC hand that points to a second time zone on a 24-hour scale that encircles the dial. The BC models and all the chronograph collections feature sapphire viewing windows in their casebacks to show off the movements, all of which have Bremont's special skeletonized rotors.

There are a few limited editions among the chronograph series, most notably the EP120, named after a 1942 Spitfire fighter jet. It has a case of black-DLC-treated steel and titanium and a 30-minute "time of trip" dial. The watch, which is limited to 120 pieces, uses traces of aluminum from an actual Spitfire plane in the case and dial, and sports an unusual, propeller-shaped rotor. Other limited editions include the Bremont Norton (200 pieces), designed as a companion piece to the well-known, British-made Norton motorcycles, and a limited version

of the ALT1-Z that is available only to graduates of the elite U.S. Naval Test Pilot School.

Supermarine 500, introduced last year, is Bremont's first line of divers'-style watches, though even these, English points out, have a direct aviation influence. Supermarine is the company that built the Spitfire aircraft flown by the RAF in the Battle of Britain, as well as numerous "flying boats" and seaplanes. The Supermarine is water-resistant to 500 meters and features a screw-down crown and caseback, a unidirectional rotating bezel made of sapphire, and an automatic helium release valve. The watch uses automatic caliber BE-36AE, with the day and date in a window at 3 o'clock and protected inside an antimagnetic Faraday cage. The movement is also protected by the anti-shock mounting system developed for the MB line (more on which below). Three versions are available, in blue, black, silver or gray color schemes, for \$5,150. This year, a limited-edition model, the Supermarine Descent, made its debut. A tribute to the famous Supermarine S6B Schneider Trophy Seaplane, it will have a black DLC coating and will be limited to 407 pieces (the number comes from that vessel's top speed, achieved in 1931), priced at \$5,450.

THE ENGLISH BROTHERS are perhaps most excited about the MB series. The initials stand for Martin Baker, a British company founded in 1934 that is the world's most experienced producer of ejection seats and other aviation safety equipment. The Bremont MBI (the one limited to pilots who have ejected) and MBII (the model available to the general public) are the only timepieces engineered to withstand the rigors of ejection-seat testing. "I don't think that any watch has been tested to such a degree since the Omega Speedmaster went to the moon," English says of the MB. Each watch undergoes vibration testing (equivalent to 40 years' worth of wear and tear in a cockpit), shock testing, severe climate testing (at an altitude of 1,000 feet and down to minus 70 degrees), salt-fog and corrosion testing, and even an actual high-speed ejection seat test with the watch strapped to the wrist of a mannequin.

To ensure the watches survived these ordeals, Bremont developed a proprietary system for protecting the movements. Unlike the traditional metal movement holder rings in most watches, the rubberized, shock-resistant case mountings in MB watches absorb impacts on the case while securing the movement.

To be eligible to purchase the exclusive MB1, a prospective buyer confirms his ejectee number — one of around 7,200 that have been assigned over the 60-plus-year history of ejection seats — with Martin Baker. The watch differs from the MBII visually only in its red middle section and yellow seconds hand; the MBII has a black seconds hand and a choice of black, green, gray or orange case barrel. MB watches contain caliber BE-36AE, providing hours, minutes, central seconds, and the day and date at 3 o'clock. They have the hardened, 43-mm "Trip-Tick" case, with an inner rotating bezel operated by a crown at 4 o'clock. The MBII costs \$4,950; prices for the MB1 are available on request.

The U-2 models are also based on the MB. The U-2 Squadron model, with black DLC coating, is limited to 150 pieces and of-



fered exclusively to the pilots of the 9th Reconaissance Wing based at Beale Air Force base in California. Another 150 pieces, with a Lockheed U-2 silhouette on the dial, will be available at retail. So will two other "standard" U-2 models, one with DLC and one in stainless steel. The U-2 watches cost \$5,350.

The other aspect of the MB range of watches in which the Englishes take great pride is the fact that final assembly on them takes place at the company's workshop in London rather than in

Bienne, a fact trumpeted by the presence of "London" on the dials. The plan is to become, in time, more British than Swiss. "The Germans did it with A. Lange & Söhne and Glashütte Original, so there is no reason why the British can't do it," English says. "There are already great British watchmakers like

Roger Smith, but he's making about 20 watches a year. We're at mass production compared to him; we'll probably make 3,000 watches this year. Eight years ago, we didn't have the experience to find the talent we needed in the U.K., but we do now."

WORKSHOPS IN

To that end, Bremont plans to slowly expand the production capacity of its London atelier (between its two workshops, Bremont employs about 20 watchmakers), develop new in-house modules that add some classically British adaptations to its movements (to be introduced at next year's Baselworld watch fair), and eventually, of course, introduce an in-house caliber made in Britain. Perhaps to prove it is serious about this last goal, the company recently built a marine clock, inspired by John Harrison's original ship's chronometer and made at the London workshop, with an in-house movement incorporating a twin-fusee system and a classical English escapement. The dial indicates two additional time zones, the date, a 30-day powerreserve and a 90-day chronograph in addition to the local hours, minutes and seconds, and the case is water-resistant. It will sell for \$58,000 and only 10-15 pieces will be made per year.

As it enters only its ninth year, Bremont has made its presence known in the luxury watch world, and its marketing and promotions have emphasized its British connections. In 2008, the brand was named "Best Emerging British Luxury Brand" by the prestigious Walpole organization. It has become a timing partner to British sporting events like the Goodwood Festival of Speed, the Oxford-Cambridge Boat Race and the Epsom Derby. Celebrities from the U.K. have been spotted sporting Bremonts on their wrists, like actors Orlando Bloom and Ewan McGregor, and adventurers Bear Grylls (TV's "Man vs. Wild") and Charley Boorman. Nevertheless, it appears Nick and Giles English will be satisfied only when their "Anglo-Swiss" brand goes all-Anglo. "In the 1920s, the Swiss used to put 'London' on watch dials because they knew those would sell better in the Far East. That just shows you how things were and where they've gotten. Right now, 90 percent of our watch is from Switzerland and the rest is from England. Eventually, we'd like to reverse that. We'd love to see 'London' on the dial of every watch."



G

oogle Earth shows the distance between the headquarters of Alpina and Frédérique Constant, in Plan-les-Ouates, on the outskirts of Geneva, as about 200 meters. When traveling between the two, it's a good idea to leave the car where it's parked, since the front door of one building is basically the back door of the other. Peter Stas, the founder of Frédérique Constant, revived the 127-year-old Alpina brand in 2002 and gave it new shine. He and his team at Alpina have succeeded at a tricky task: giving a sporty look to the classic regulator design, in which the hours are displayed on a dial that is separate from the main, minutes dial. In fact, the regulator sports watch has become a hallmark of the brand. We tested one such model, the Avalanche Manufacture Regulator.

The dial of this large timepiece (46 mm in diameter) is asymmetric, with the hour dial placed at 10 o'clock, rather than on the 12 o'clock to 6 o'clock axis as in a traditional regulator. The designers decided to leave out a seconds subdial in favor of a date display with a hand indicator at 6 o'clock. This re-interpretation looks great and is also surprisingly easy to read. The hands and markers are luminous; the fact that both are quite wide ensures that the dial is clearly legible at night. However, reading the minutes all too often requires some guesswork because the hour track, date dial and even the logo overlap the minute track, blocking out roughly half of it.

The lack of a seconds indication is also a drawback: it is simply essential on a sports watch like the Avalanche, so it would have been better to omit the date indication. The lack of a seconds hand offers a clue as to the movement's origin. It was actually created by Frédérique Constant next door, then modified to create the regulator display (making it 0.75 mm thicker) and fitted with an unusual and attractive pie-piece-shaped rotor, which provides an almost unobstructed view of the movement. (While, technically speaking, the movement is not made by Alpina itself, the AL 950 is considered a *manufacture* movement because it is made by its sister company.)

SPECS

ALPINA AVALANCHE MANUFACTURE REGULATOR

Manufacturer: Alpina Watches International, Chemin de la Galaise 8, CH-1228 Plan-les-Ouates. Switzerland

Reference number: AL-950LBG4AE6

Functions: Offset hour display, minutes, date indication

Movement: AL 950, automatic; 28,800 vph; 25 jewels; Incabloc shock absorber; Glucydur balance; Nivarox A hairspring; hack mechanism; decorated with perlage and Geneva stripes, blued screws, black rotor; power reserve = 62 hours; diameter = 31 mm; height = 6.25 mm

Case: Stainless steel, sapphire crystal, transparent caseback with six screws, screw-down crown with ABS coating, water-resistant to 200 meters

Strap and clasp: Rubber strap with stainless-steel folding clasp

Rate results:

(Deviations in seconds per 24 hours)

Dial up	+4
Dial down	+
Crown up	(
Crown down	
Crown left	(
Crown right	+(
Greatest deviation	4
Average deviation	+1.3
Mean amplitude	
Flat positions	304
Hanging positions	294
Dimensions: Diameter = 46	mm, height =

13 mm, weight = 154 g

Variations: Rose gold (\$9,500)

Price: \$3,750

Pros

- + Very good rate results
- + In-house movement
- + Comfortable to wear

Cons

- Moisture condensation under crystal
- No seconds indication
- Minutes not always legible



The unusually shaped rotor provides a clear view of the movement.



The clasp is sturdy, attractive and easy to adjust to individual wrist sizes.

The watch has a power reserve of 62 hours. Our rate test brought extremely impressive results. On average, the test showed a gain of slightly more than one second per day. And even after the watch was worn and subjected to considerable activity, it needed no adjustment. The case, made of stainless steel, is always comfortable to wear, thanks in part to the solid and attractive folding clasp on the rubber strap. The crown's size and its ABS coating make it easy to grasp and turn to release it from its locked position. Setting the time and date is just as easy.

A striking fault in this otherwise very admirable watch was the slight foggy haze that was apparent on the inner side of the sapphire crystal, indicating moisture inside the watch case (it claims a water-resistance level of 200 meters). Apparently, this was due to an assembly error: an examination of the case at critical points revealed no defects.

The Avalanche Regulator bears a price tag of \$3,750 — not unreasonable, especially when one considers the amounts paid for other Swiss timepieces with in-house movements. \bigcirc



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ORBITA°

Florence-based Anonimo is a watch brand where the case is king.

BY MARK BERNARDO

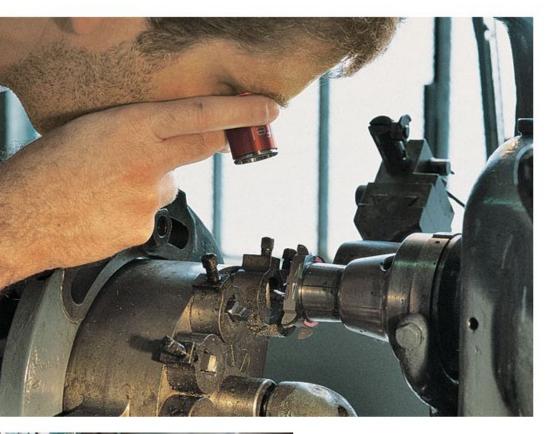
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very block of stone has a statue inside it," said Michelangelo, the quintessential Florentine Renaissance man, "and it is the task of the sculptor to discover it."

While the man plying his trade in this crowded, clamorous, machine-filled workshop in a secluded Tuscan village would probably never compare himself to the sculptor of the statue of David, Florence's most iconic piece of art, he has a similar, undeniably Florentine philosophy about his own chosen craft. In every

heavy bar of steel, titanium and bronze that comes into his hands, he sees an elegantly sculpted watch case waiting to be freed from its metal confines. Working amidst the dust, metal shavings and other detritus from the other projects on which he and his father, who founded the workshop, earn their living — mostly metal components and prototypes for military, aerospace, medical and industrial applications — he clearly cherishes his vital role at the beginning of this horological







process. At its conclusion, it will render a finished Anonimo wristwatch, its dial proudly bearing the notation, "Handcrafted in Firenze."

It is to watch this modern master at work (I have been asked to keep both his name and his location a secret by my hosts) that I have traveled from the city of Florence through the rolling Tuscan countryside — past acres of olive groves, vineyards and farming villages, accompanied by Anonimo's marketing director, David Cypers, and its head of operations, Dieter DeVrieze. Florence-based Anonimo takes great pride in its cases the way Switzerland's haute horlogerie houses take pride in their complicated movements, and this slow, labor-intensive, and expensive process that produces them is the reason. "In Florence, it's all about the unique piece, about craftsmanship, about working in an artisanal way," says Cypers. Federico Massacesi, Anonimo's founder, had put it more succinctly the

Fabiano Alessi's team oversees Anonimo's watch assembly and quality control

Antonio Ambuchi, Anonimo's head of design, examines a case under a loupe at the workshop in Lastra a Signa

day before: "It is in the Italian DNA to make beautiful things."

Most watch cases, even those on many luxurious models, are made by "stamping," or forcing the metal through a die with thousands of pounds of pressure to make it conform to the case shape. Anonimo believes this results in the metal becoming unduly brittle. The company instead uses a reductive process that carves, drills and scoops out metal from a solid block that has been treated to maintain its molecular integrity. This is where the father-son team in the workshop comes in. They use a lathe to cut away the excess metal around the case and turn it from the inside, leaving a small, rough-edged piece, like a hockey puck with a donut hole. This piece is then fitted into a CNC machine, in which its shape begins to become defined, and its lugs formed, by a series of sensitive refining tools. Another CNC machine, guided by the craftsman's hand and eye and following a sophisticated CAD drawing, drills the precisely placed holes for the crowns and pushers. Once these operations have been carried out to the workshop's exacting standards — at the end of a good day, it completes maybe 20 pieces — the cases are shipped to Anonimo's finishing facility in Lastra a Signa, just outside the city of Florence, for further refinement. "We work in the opposite direction from the Swiss," Cypers says, explaining the company's philosophy. "They concentrate on building a beautiful, functioning movement and build a case around it. We start by building a beautiful, high-performance case and see which Swiss movement is best to adapt to it."

Although it has recently marked only its 12th year in business, Anonimo can boast of a history of casemaking craftsmanship that goes back to the 1930s. It is a history that began with — and is inextricably tied to — another, better-known Italian watch brand that once, but no longer, called Florence home: Officine Panerai, which made its name producing big, rugged divers' watches for Italian naval frogmen.

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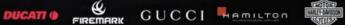
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ZODIAC

DEPENDING ON YOUR perspective, when Panerai left its traditional home in Florence to move its manufacturing to Switzerland, it meant good news, bad news, or opportunity. Good news for the Richemont Group, Panerai's buyer, which has since built it into an extremely profitable, powerhouse brand. Bad news for the Florentine craftsmen who made cases for Panerai watches, some of them carrying on family traditions that stretch back to the brand's beginnings in 1936. Opportunity for anyone determined to keep Florentine watchmaking alive and who had the means and resources to do so. The man who took advantage of that opportunity was Massacesi, a native of Florence and former executive at the Italian fashion house Salvatore Ferragamo.

Massacesi, who had no watchmaking experience but a keen eye for design and men's fashion trends, secured funding from local investors to start the company in 1997. He reached out to many of the casemakers who had worked regularly on Panerai watches, most importantly the members of the Ambucchi family, whose



The Firenze Dual Time Drass/Gold (\$9,500) has two automatic movements, one for each time zone.

atelier had been turning out cases for Panerai and other Italian watch brands since 1939. Antonio Ambucchi, son of the atelier's founder, Enrico Ambucchi, came on board as Anonimo's head of design, and he, more than anyone, is responsible for Anonimo's distinctive look.

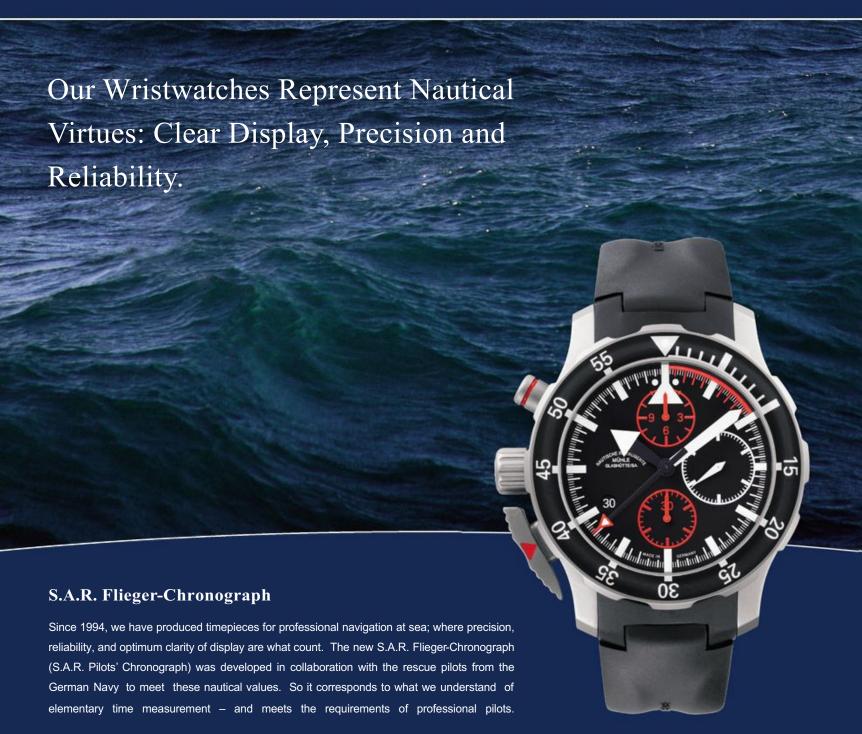
The other important figure from the old Panerai with whom Massacesi became acquainted was Dino Zei, a colonel in the Italian navy who had risen to become the brand's CEO. The colonel and the company had a longstanding business relationship thanks to Panerai's work making watches for navy divers. Zei took over the management of Panerai (then called Guido Panerai e Figlio) in 1972, replacing Giuseppe Panerai, a descendant of the founding family who had recently died. Zei established Officine Panerai Srl, which took over the operations of the old Guido Panerai company, and became its chairman until 1997, when Officine Panerai became part of Richemont (then called the Vendôme Group). Zei did not actually join Anonimo in an official capacity until 2002 due to a five-year non-compete clause in his contract with Panerai. Today, he is the design consultant for the line of Anonimo watches that bears his name.

Massacesi called the company "Anonimo," (Italian for "anonymous") because, as he told *WatchTime* in a 2003 interview, "inner confidence is more important than ostentation." The Florentine tradition, he believes, is to "take away everything that is not essential." Hence, Anonimo watch dials, up until this year's redesign, did not bear the brand name.

In 2009, shortly after Anonimo's 10th anniversary, a new partnership was formed to create Firenze Orologi Srl, the company now responsible for Anonimo distribution worldwide. It is made up of three entities: the founding Massacesi family, represented by Federico Massacesi, who holds the title head of manufacturing; D.A.G., SA, a Belgian firm represented by new Anonimo CEO Dag van Elslande, as well as DeVrieze and Cypers;







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and Fidi Toscana, a Tuscan consortium that supports local business. The new partnership put a marketing plan in place that emphasizes the brand's Italian pedigree. In addition to the Anonimo logo and "Handcrafted in Firenze" on the dials, Anonimo watches now bear the inscription "Casemakers in Firenze since 1939" on the casebacks.

MUCH LIKE THEIR predecessors at Panerai, Anonimo's designers focused on big, utilitarian divers' models, fashionable in the classic Italian sense but also suitable for underwater use. "The Florentine history of making watches for divers is important," says Cypers. "The watches have to be able to be used — in a sea environment, in a military environment, the wearer needs to trust that watch to be high-performance." Ambucchi and his team began developing technologies and inventions that would ensure easy operation under water, several of which would be exclusive to Anonimo. Among these are the socalled crown vanishing locking device, used on the Militare models, which uses a metal pin mounted on the inside end of the strap to push the crown, located at 6 o'clock, completely into the case; the "U-Lock system," used on Professionale models, which connects the bezel to a hinged caseback with external joints tightened by screws; and the quick-tightening "bayonet" crown used on some watches in the Dino Zei line. These are among the company's six patented innovations, along with its water-resistant "Kodiak" calfskin leather straps, which are treated with a secret vegetable-resinmixture formula that enables water molecules to pass through the leather rather than get clogged up inside it.

Massacesi had the casemaking expertise lined up in 1997, but knew he needed Swiss movements to power the watches. Using his men's-fashion sensibilities, he created a catalog of watch designs and met with Swiss movement manufacturers, including the late Nicolas G. Hayek, chairman of the Swatch Group, which owns ETA. Hayek and these other suppliers were duly impressed by his proposed watch line and agreed to provide movements. Reminiscing about the meet-



ings, Massacesi says, "I must have been the only watch company owner who makes a catalog in order to buy things rather than sell them!"

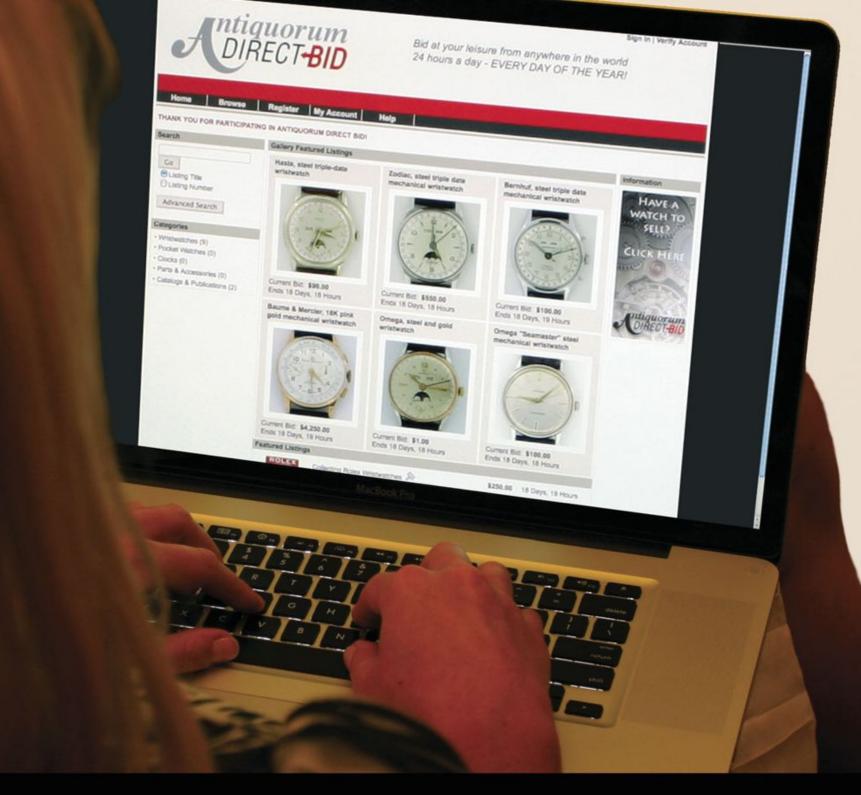
In 1998, the first models arrived, starting with the Millimetri (Italian for 1,000 meters), a three-handed model with central seconds and date window, and the 1,000-meter water resistance its name implies. The Millimetri included several aspects and functions found in Anonimo's collection today, including a manual helium-release valve; a thick, domed sapphire crystal; a screw-locked caseback; and the dial design with big Arabic numerals at the cardinal points and baton-style hour and minute hands coated with luminous material. It was a hit with watch consumers, and also led to Anonimo's continuing relationship with military clients and industrial diving companies.

Today, Anonimo's watches fall into one of four collections. The Basic line includes the Millimetri and other three-hand/date models like the entry-level Sailor Diver (water-resistant to 300 meters); the large-case Polluce Magnum (water-resistant to 1,200 meters); and a chronograph, the Cronoscopio Mark II (water-resistant to 120 meters). Watches

The Dino Zei San Marco Drass (\$9,500) includes a military-inspired countdown function.

in the Militare line —three-hand automatics and chronographs — are distinguished by their locking crowns at 6 o'clock. They also include the Firenze Dual Time, a GMT watch with two separate automatic movements (one for each time zone) operated by separate crowns at 12 and 6 o'clock. The Professionale line has the hinged U-Lock cases and automatic helium expulsion valves, useful features for professional divers. This line includes the Marlin, with its 55-mmdiameter case, and the Professionale Crono and Professionale GMT, water-resistant to 1,200 and 2,000 meters, respectively. Finally, there is the Dino Zei line, with sporty-elegant models like the Nautilo, with a power reserve at 6 o'clock, and the San Marco, with a countdown function. All Anonimo watches are limited editions (the number of pieces made depends on the model), and the company makes only about 3,000 pieces per year.

AS ANONIMO'S watch line has expanded, Ambucchi and his team in Florence have continued to innovate in the area of casemaking. A recent development is the so-called drass finish, which Anonimo uses on some of its stainless steel cases rather than the more common PVD. "Drass" is an acronym meaning "Double Refinished Anonimo Steel Surface." It begins with the so-called Ox-Pro treatment, developed in cooperation with the Italian navy for weaponry, binoculars and other military applications in which metal items must be camouflaged. Ox-Pro is a 14-step oxidation process that uses selected acids to treat the surface layer of steel, rendering it more corrosion-resistant and nonreflective, as well as turning the steel a darker, gunmetal color. After this process, the treated steel case is then sandblasted to remove the least-resistant surface layer. The resulting drass case has both a distinctive, dark look and a higher scratch-resistance than typical stainless steel. Anonimo uses a drass case for the Dino Zei San Marco model. The watch has an automatic Soprod 9055 caliber on an ETA 2892-2 base



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to power its multiple functions, including hours, minutes, and sweep seconds; 24-hour subdial between 10 and 12 o'clock with a GMT indicator hand; red power-reserve indicator hand at 5 o'clock; date display window at 2 o'clock; and the countdown function, controlled by a rotating external ring, which counts down to a pre-set time or event.

Other 2010 models combine drass with gold. The Cronoscopio Drass/Gold combines a drass case with gold screws to lock the bezel and a gold external ring around the dial. The watch contains the ETA 7750 automatic chronograph movement. The Notturnale Drass/Gold is a tribute to the Della Volpaia family, 16thcentury pioneers of Florentine watchmaking who developed a mechanical timepiece that measured time by the daily movement of stars in the night sky. It is a Cronoscopio with five gold bezel screws, inscribed gold ring around the dial and gold trim around the date window. Only 200 pieces will be made.

Recently, Anonimo began using a material for cases that combined Tuscan sculptural tradition with nautical practicality: bronze. But not just any bronze: the alloy used in Anonimo watch cases is called marine bronze, a compound of copper, iron, and nickel. This highly corrosion- and oxidation-resistant alloy is commonly used in the petrochemical industry and in maritime applications such as ship's propellers. Watches with bronze cases, according to Anonimo, are not only suitable for deep sea diving; they are also ideal for collectors who want a truly personalized item: each watch case made with marine bronze will over time develop its own unique, warm patina activated by contact with skin, air and water. Several of Anonimo's models are available in bronze cases, including the Polluce Magnum, whose bronze version was released this year. It contains Anonimo caliber 01.0, based on an ETA 2824-2, with hours, minutes, central seconds and date indication, visible through a cutout in the partially skeletonized dial. The 43-mmdiameter case has a domed sapphire crystal and is water-resistant to 1,200 meters. The Marlin Bronze, at a massive 55-mm diameter, has a Sellita SW200 base move-



ment, an extra-thick dial and crystal, and a 1,500 meter water-resistance.

THE WORKSHOP IN Lastra a Signa where case finishing takes place is the same building in which Enrico Ambucchi started working on watch cases in 1958. When the cases arrive there, they are delivered into the capable hands of veteran case craftsman Alessandro Lari, Anonimo's head of case manufacturing, and his small staff. Their first step is smoothing out the rough edges, using four machines with sandpaper belts — the first one for the roughest surfaces, the final one for the finest. Afterward, the smoothed-out cases are immersed in a chemical bath for cleaning, then sandblasted — with real sand — to remove any remaining surface roughness. The pressure of the sandblasting varies based on the case material: bronze cases, for example, receive lower pressure than steel ones. Finally, one more bath in the chemicals follows for another cleansing. At this stage, bronze cases also undergo a chemical treatment to start the aging process that will give

The Marlin Bronze (\$6,950) has a big, 55-mm-diameter case in corrosion-resistant marine bronze.

each one its unique hue. This labor-intensive process is how Anonimo cases achieve their distinctive, matte appearance. Upstairs from these machines is another workspace where pre-assembly and some prototype construction takes place. Manually operated Swiss machines, some dating back to 1939, are in use here for various pre-assembly tasks. Steel bracelets, ordered from outside suppliers, are also finished here to make them suitable to match up with Anonimo's cases.

Finished cases are sent to Anonimo's nearby headquarters, which is also where Anonimo's head of assembly and aftersales service, Fabiano Alessi, and his staff assemble the watches and quality-test them for the market. The cases are fitted with mechanical movements Switzerland, primarily ETA, Sellita and Soprod, as well as modules from Dubois-Dépraz made especially for Anonimo, and dials and other parts from other suppliers. Movements are attached to hands, dials, and crowns, and crystals are added to the cases and bezels. Alessi and his team then subject every timepiece to a motion test and water-pressure test using machines; Anonimo developed its own machine to test high-water-resistance models, as in the Professionale line, using 2,000 meters of pressure. Finally, each watch's serial number is logged into a computerized database for easy reference.

Because the cases are Italian-made, and the assembly takes place in Italy, Anonimo watches attain the 50-percent production percentage that enables them to legally tout that they are made in Florence. Many at Anonimo, including Ambucchi, would be happy to see that percentage of Italian parts and labor higher. For now, however, most are happy simply to be a part of keeping Florentine watchmaking alive and well.

"We recognize that the Swiss are the best at making movements," Cypers says, "while case manufacturing is typically a tradition of northern Italy. Our watches have an Italian case and a Swiss movement — to us, that is the best of both worlds."

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Blade Runner

The German brand Mühle-Glashütte asked helicopter search-and-rescue pilots what they wanted in a chronograph. We tested the resulting watch.

ny new watch model should offer something fresh in the area of function or design. The Mühle-Glashütte S.A.R. Flieger Chronograph certainly does: it has a large, easy-to-use start-stop pusher at 8 o'clock, designed for easy use in an aircraft's cockpit. (*Flieger* is German for "pilot.") The oversized pusher, like the return-to-zero button at 10 o'clock, has been shifted from its usual position on a chronograph watch because the movement has been rotated by 180 degrees. This makes for a particularly dramatic design.

The watch has an interesting history: it is the result of a collaboration between Mühle and the search-and-rescue (the "S.A.R." in the watch's name) helicopter pilots of the German Navy. These pilots wanted a pilots' watch with luminous displays for dark cockpits, a stopwatch function to use as a navigational aid, and a strap extension so they could wear the

watch over a flight suit. The rescue pilots also requested that the stopwatch be easy to start, even when they were wearing gloves, and that it have a 10-second segment highlighted in neon orange at the beginning of the stopwatch track. These seconds aid in calculating the ground speed (the speed the helicopter is moving relative to the ground). The cockpit instruments only indicate the speed in the air, which can be influenced by a headwind or tailwind. In order to determine ground speed and thereby ensure accurate timing, the pilots measure the distance they cover in nautical miles over a 10-second period and then use a navigational formula to calculate their speed in

Naturally, other features have greater importance for normal everyday wear. Is the watch easy to read, operate and wear? Are the finishes appealing? And what about accuracy?

BY ALEXANDER KRUPP PHOTOS BY NIK SCHÖLZEL

Pros

- + Sturdy, well-finished sports watch
- + Elaborately modified movement
- + Very good rate results

Cons

- Operation is somewhat confusing at first glance
- Clasp is hard to open



SPECS

MÜHLE-GLASHÜTTE S.A.R. FLIEGER CHRONOGRAPH

Manufacturer: Mühle-Glashütte GmbH, Müglitztalstrasse 7, D-01768 Glashütte, Germany

Reference number: M1-41-33-200-MB

Functions: Hours, minutes, small seconds; chronograph with 30-minute and 12-hour counters; date indication; hack mechanism

Movement: ETA 7750 "Elaboré," automatic, chronograph; 28,800 vph; 25 jewels; Incabloc shock absorber; in-house mainplate; woodpecker neck regulator; power reserve = 48 hours; diameter = 30 mm; height = 7.9 mm

Case: Stainless steel; black, anodized aluminum bezel; curved sapphire crystal with nonreflective coating inside; fully threaded caseback with sapphire window; water-resistant to 100 meters

Strap and clasp: Stainless-steel bracelet; simple folding clasp with safety lock and quick extension

Rate results:

(deviation in seconds per day, without/with chronograph switched on)

without/with chronogra	apn switche	ea on)
Dial up	+5	+5
Dial down	+7	+7
Crown up	+1	+1
Crown down	+6	+5
Crown left	+4	+4
Crown right	+2	+1
Greatest deviation	6	6
Average deviation	+4.2	+3.8
Average amplitude:		
Flat positions	287°	304°
Hanging positions	260°	271°

Dimensions: Diameter = 44 mm, height = 16.2 mm, weight = 221 g

Variations: With extendable rubber strap (\$3,299)

Price: \$3,499

The watch's legibility is quite average, despite the fact that the chronograph functions have been given a bright orange color to distinguish them at a glance from the running-time indications. The large hour and minute hands often overlap the small chronograph counters and the minute counter has no track markers except for the "30." The tremendous luminosity of the watch at night, however, is most impressive.

Learning how to operate the watch requires a period of mental adjustment due to the unorthodox positions of the chronograph buttons. But thanks to the size of the start-stop pusher and the grooved rotating bezel, which rotates in both directions, it's an easy task. Unfortunately, the bezel and pushers hinder the opening and especially the closing of the crown, which also moves very stiffly.

The well-finished stainless-steel case meets its match in quality and design in the five-row linked bracelet, whose clasp is fitted with a sturdy two-centimeterlong extension piece. The bracelet and clasp are superbly made and finished. Points were deducted only for the outer cover of the clasp, which is made of stamped metal and can be opened only with great difficulty.

The clasp is nonetheless very comfortable, as is the bracelet, whose many supple links ensure a snug fit on the wrist. The massive, 16-mm-thick case, though, is top-heavy.

Mühle invested a great deal in the watch movement. The numerous modifications to the ETA 7750 include the inhouse components Mühle has used for years (woodpecker neck regulator, rotor and rotor bridge), which since 2009 have been supplemented by the company's own mainplate, along with a Glashütte click incorporated in the winding mechanism, a low-friction crown wheel bearing and a separate pallet bridge.

Mühle's modifications to the movement and the company's effective regulation give the watch consistent rate results. Most impressive is the fact that the rate is hardly affected by the running of the chronograph. The values remain virtually the same in the different positions, and the balance amplitude (which usually

MÜHLE INVESTED
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drops noticeably when the chronograph is running) even increases. Whether the chronograph was on or off, the watch we tested gained only four seconds. That result was the same both when the watch was on the wrist and when it was on the timing machine.

The price of \$3,499 for this watch is appropriate given the high quality of the movement, case and strap and the watch's unusual design. The only improvement that one might rightly expect from a subsequent model is a more smoothly operating clasp.

SCORES

MÜHLE-GLASHÜTTE S.A.R. FLIEGER CHRONOGRAPH Bracelet and clasp (10 pts. max.): 8 Operation (5): 3 Case (10): 9 **Design (15):** 13 Legibility (5): 3 Wearing comfort (10): 8 Movement (20): 14 Rate results (10): 8 Value (15): 12 TOTAL: **78 POINTS**

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Top: Arctos Elite GPW L1. Specifications: Zirconium oxide case (high-tech ceramic) with titanium case back. Mechanical movement with automatic winding. Time setting with second stop. Case diameter 44 mm. Height 15.5 mm. Lugwidth 24 mm. Convex sapphire crystal with anti-reflective coating. Screw-in crown. Water-resistant 50m (160 feet). Pressure proof German Industry Norm DIN 8210 to 5 bar. Bottom: Arctos Elite SEKM 2000M B. The SEKM is named after the German 'Spezialisierten Einsatzkräfte der Marine', which means Special Marine Forces, in short SEKM. Specifications: 316L surgical stainless steel case with automatic helium release valve. Water-resistant 2000 m (6600 feet). Pressure proof German Industry Norm DIN 8210 to 200 bar. Mechanical movement with automatic winding. Time setting with second stop. Case diameter 45 mm. Height 17.9 mm. Lugwidth 24 mm. Sapphire crystal with anti-reflective coating. www.Arctos.info



mmitmen

Ralf Tech's journey from a scuba-gear company to a new presence on the divers'-watch scene

BY MARK BERNARDO

When you give a watch brand an oddball moniker like Ralf Tech, you expect almost every interviewer's first question to be something on the order of, "Where did you come up with that name?" or, perhaps a more succinct, "Who's Ralf?" I pose the first query to Frank Hughye, the affable Frenchman who founded the brand, over lunch at the Ritz-Carlton in Miami's South Beach. Hughye (pronounced *Hungh*), who had obviously answered it one too many times, kindly acquiesces to satisfy my (and, I'll wager, your) curiosity. "I was sitting in a restaurant with three friends, and we were searching for a name," he says. "Sometimes when you brainstorm too much, you don't find anything right. So I looked around the table and noticed the first letters of all my companions' names — Roseline, R; Arnaud, A; Laurence, L; and myself, Frank, F. The only way to arrange those letters into a name is 'RALF." The twist to this tale is that the business he was naming in this quaint fashion was not a watch brand but a diving-equipment company. How the latter evolved into the former is a story all its own.

For Hughye, it begins with a love of watches that came long before his interest in diving. He began collecting watches at 12 years old, at the time mostly Casios and other low-priced digital models. At 22 or so, he scraped enough cash together to buy his first Rolex, and the hobby snowballed from there. Today, he estimates, he owns around 500 watches, and he continues to collect, mostly vintage pieces.

Watches did not, however, figure into Hughye's early career path. In the late 1980s, he was running a consulting company that dealt in producing goods for American and European companies in Taiwan and China. Among his clients were the surf-gear companies Billabong and Quiksilver; Hughye was a surfer himself, but not a diver until one day in Thailand in 1994, when he and a business associate were caught in a days-long rainstorm and decided to learn diving at a local dive shop. What the hell, Hughye reasoned, they were already going to be wet; might as well do something enjoyable and maybe useful. Four days later, Hughye had his divers' certification, as well as a new, all-consuming hobby.

Hughye had become, in short order, a serious diving enthusiast, and by 1996, a certified instructor, but he never took to the suits and equipment that were made specifically for the sport. Instead, he found the wetsuit that he used for surfing to be much more comfortable, and much better at protecting the body from strong waves and trapping in heat. "I asked why it was not possible to use this type of equipment in diving," he says. "The only answer was that no one had done it before. Diving, surfing, sailing — they are all different worlds that, surprisingly, don't

PASCAL BERNABÉ SET THE WORLD RECORD FOR DEEPEST DIVE — 330 METERS — WHILE WEARING THE RALF TECH PROTOTYPE WATCH.

communicate much." Hughye broke down that barrier when he began consulting for the sporting goods company U.S. Divers, which incorporated many of his ideas from the surfing world into its line of diving equipment. Eventually Hughye decided to keep those ideas to himself, and launched his own brand of diving equipment in 1998, the first company to bear the name Ralf Tech. Its equipment was eventually sold by more than 2,000 retailers in 25 countries, and while it never became a household name, Ralf Tech did become known as a hot brand for professional divers in the know, as well as an outfitter of several European navies.

Hughye had turned one of his hobbies, diving, into a successful business. At the time, he was still keeping his other hobby, watches, separate from his professional world. The first Ralf Tech watch might never have come about if not for a fateful meeting in 2003 between Hughye and a well-known French scuba diver named Pascal Bernabé. Bernabé was the European record-holder for the deepest dive, 250 meters below the surface. When he met Hughye, he declared that he intended to break the world record of 318 meters, and he was interested in using Ralf Tech diving gear in his well-publicized attempt.

Hughve's first reaction was to ask Bernabé why he'd approached his company rather than one of the numerous larger, better-known ones. Apparently, according to Bernabé, those companies did not want to risk having their logos found on the body of a man who could conceivably perish at the bottom of the sea in this risky attempt. Hughye today jokes that he told Bernabé, "It's OK; I don't care if you die. I'll just say it wasn't the equipment; it was something you did wrong." Most importantly, Hughye's lifelong watch fascination drove him to take the challenge a step further: he would craft a mechanical Ralf Tech watch that could withstand the pressures at the record depths to which Bernabé would descend. He contacted a childhood friend who had a watch atelier in the Swiss Jura town of Lajoux, sent him the watch design he had cobbled together and gave him a year to develop a prototype. Numerous calculations — the thickness of the case and crystal, the placement of the Orings — were necessary to ensure uncommonly high water-resistance. Hughye then contacted Haux Laboratories, based in Germany's Black Forest, a manufacturer of divers' decompression chambers. There, the prototype was tested in a water tank, unlike the majority of divers' watches, which, according to



The WRX Automatic Chrono Night Explorer



The WRX Automatic Chrono Sunset Explorer

Hughye, are never actually immersed in water to determine their water-resistance. "If you see '200 meters' on a divers' watch, it's probably just a calculation," he says. "It's tested in a decompression chamber with air pressure, but there's no water." The prototype remained water-resistant to 400 meters — nearly 100 meters beyond what Bernabé would experience. Hughye knew the watch could handle the pressure; the rest was up to Bernabé.

On July 9, 2005, off the island of Corsica, all doubts were erased. Bernabé descended to 330 meters wearing Ralf Tech equipment, including the prototype watch, setting a new world record that still stands. (Hughye is proud to point out that the watch kept running even after Bernabé's electronic dive computer, the device that was supposed to be its backup, failed at 300 meters.) Hughye quickly realized that it was his watch—not a Rolex, Omega or Blancpain Fifty Fathoms—that was now associated with a diving milestone, and jumped at the chance to market it in dive shops throughout Europe. Dubbing it the WR-1 (for World Record), he ordered 500 more from the workshop in Lajoux. It was when he approached a few Paris jewelers with the watches, who told him he should be charging more for them, that Hughye realized he might be able to build this side project into a going concern.

He sold the Ralf Tech diving equipment company (which subsequently went bankrupt) but kept rights to the name, using it for a new line of watches, all modeled on the WR-1 prototype and still made in Lajoux by a team of 15 watchmakers.

Ralf Tech watches are, as one might expect for a timepiece engineered to hold up 300 meters underwater, big, thick, and heavy. The cases of the two main Ralf Tech collections, the WRX Automatic and WRX Automatic Chrono, are made of 316L surgical steel (Night Explorer models have black PVD coating and Sunset Explorers have rose-gold PVD coating) and are 47.5 mm in diameter. Their curved sapphire crystals are 5.9 mm thick, with nonreflective treatment. The watches all have unidirectional rotating bezels and screw-down crowns and casebacks. Each watch comes with two interchangeable straps color-coordinated with the dial, one in alligator leather, the other in silicone. Hughye himself chooses the leather for the straps from a tannery.

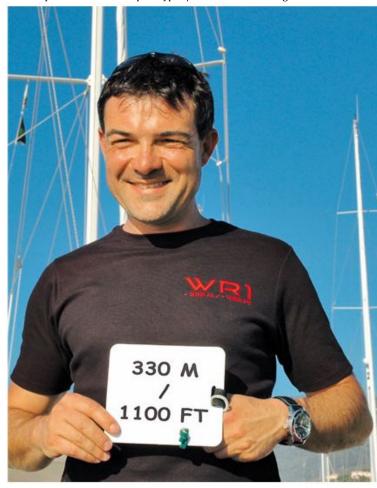
The Automatic uses an ETA 2824-2 as its base, and its dial features the brand's stylized water-droplet-shaped date window at 3 o'clock. The Chrono's movement is based on an ETA 7750, with day and date in a window at 3 o'clock, 30-minute counter at 12 o'clock, 12-hour counter at 6 o'clock, and running seconds at 9 o'clock. Each model is a numbered, limited edition of 250 pieces. Automatics cost \$2,450 and Chronographs are \$3,950. Ralf Tech's production is about 2,250 watches per year, a level Hughye plans to maintain going forward.

If it was a long and winding road that led Frank Hughye to the watch business, it is one he intends to follow for a while; after all, it took a while to get there. "I believe that in one life, you get several lives," he says, "several chapters that make up the whole story." Just don't ask him any more about the brand name: that chapter is closed.

The WRX Automatic



Bernabé poses with the WR-1 prototype after his record-breaking dive



B WARK BENANKDO

Behind the scenes at the Japanese electronics giant's timepiece division

utside, workers are tending to the cherry trees in the hot, humid air. Inside, in cool, temperature-regulated comfort, I'm suiting up for a moonwalk.

suiting up for a moonwalk.

At least it feels that way, here inside the high-tech manufacturing facility of Casio Computer Ltd. in Japan. My small tour group, which is here to witness the company's watch production, is suited up head to toe in blue astronaut suits, with slip-on booties covering our shoes and surgical masks over our faces. On the way into the room where the most delicate work is being done, we each step into a "Star Trek"-like chamber that renders us dust-free. Even for someone who has walked through his share of watch factories, and been duly impressed with

their meticulousness, this one takes sterility to a new level.

city of Higashine, an industrial hub nestled within the prefecture of Yamagata, a beautiful agricultural area known for its flavorful cherries and pears, on the Japanese mainland. Established in 1979 as a subsidiary of Tokyo-based Casio, it is the company's mother factory, making mobile phones, calculators, and — as I am about to see firsthand — timepieces. (It also does contract work for other clients such as Motorola and Pioneer.) The Yamagata production tour is the final leg of a multipart presentation that began more than 200 miles away back in Tokyo, in which one of the world's best-known electronics companies offers a rare glimpse of its world-class watch production prowess.



Casio's premium-priced watches those priced at \$300 and up, including the Oceanus and the new Pathfinder models — are either partially or totally manufactured at Yamagata Casio. (Low- and midprice watches are made at two other Casio factories in China and another in Thailand.) As my guides and I pad through the workshops in our protective garments, I witness the entire picture coming together. First, it's the movements, which look like no other quartz movements I've ever seen, with tiny antennas and five minuscule motors for all the analog functions of complicated models (simple three-hand analog models use only one motor). It is, as you'd expect, a highly mechanized process, with assembly-line robots attaching tiny screws, rotors, and electronic coils, and punching tiny pinholes in the gears. Why the pinholes? After they are punched, a machine emits a red light beam that checks the exact position of the holes in relation to that of the hands to ensure that they line up exactly. If the red light shines through all layers, the movement has passed Casio's "Tough Movement" test — more on which later - and a digital "OK" appears on the monitor. Technicians apply by hand the pieces that are still too tiny for the robots to work with, like the tiny washers between the gears, and tighten all the screws as a final step. The assembly line pumps out an astounding one complete movement every 16 seconds, or more than 1,500 per shift.

Plastic cases are also made here from the metal dies to make the molds, to the molds themselves, to the finished cases. (Most steel cases, like those used for the Oceanus, are purchased from outside suppliers.) The factory even makes the molds from which the movement base plates are made. Digital concept drawings for the molds, cases and plates come in from the R&D department in Hamura, an industrial area outside Tokyo where other large technology companies, including Toshiba, also have facilities. Technicians at Yamagata then initiate the mechanized process that make them into 3D reality, beginning with the massive banks of machines that cut the molds with computerized precision and concluding with the "baking" of the finished cases for one hour to remove any excess moisture from the molding process. By the time I remove my dust-resistant suit, I've witnesses a rarity in the watch world: a process where both the case and movement of a watch are constructed Ato-Z under the same roof.

WHEN MOST WATCH aficionados think of Casio, they usually think of it as the third of the Big Three Japanese watch giants, after Seiko and Citizen, and it is a colossus: Casio Computer has net sales of 427 billion yen (\$4.98 billion) and employs over 12,000 people worldwide. Watches represent 18.2 percent of its global sales, about 30 million units. Casio is, however, unique among the Big Three in a couple of significant ways. One is that, unlike the other two, Casio did not start out as a watch company; it did not, in fact, enter the timepiece business until 1974, a far cry from Seiko (which produced its first pocketwatch in 1895 and its first wristwatch in 1913) and Citizen (which began making pocketwatches in 1924 and wristwatches in 1931). The other difference is that unlike its competitors,

Yamagata Casio is Casio Computer's mother factory.

Casio at a Glance

Founded: June 1, 1957

Headquarters: 1-6-2, Honmachi Shibuya-ku, Tokyo 151-8543, Japan

CEO: Kazuo Kashio

Net sales: ¥427 billion/\$4.98 billion

(fiscal 2010)

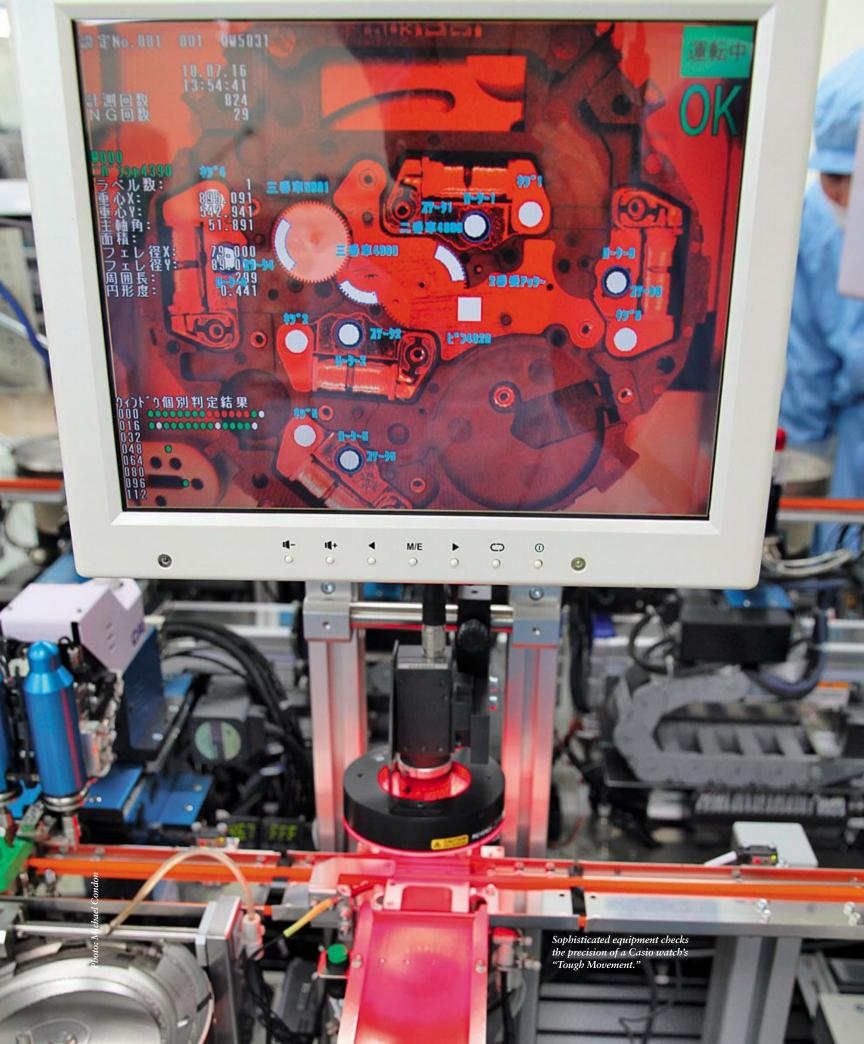
Number of employees: 12.247

(March 2010)

Top products: Digital cameras, electronic dictionaries, calculators, cellular phones, timepieces

Annual watch production: 30 million units





Casio has never made and has no plans to make a traditional, mechanical watch. The company takes as much pride in its electronics expertise, and its innovations to quartz timekeeping technology, as any Swiss purveyor of *haute horlogerie* takes in its tourbillons and minute repeaters. Even as a Japanese producer of quartz watches, Casio stands somewhat apart, as it is the only one of the trio to have both rechargeable solar batteries and radiocontrolled atomic timekeeping as standard features in all its premium models.

The first day of the tour, at Casio's sleek skyscraper headquarters in the bustling Shibuya district of downtown Tokyo, I browse through the company's history at an on-site museum devoted to telling the Casio story, with numerous historic and modern Casio products — including a full complement of significant watches — presented in glass cases.

That story begins with Tadao Kashio and his three younger brothers, Toshio, Kazuo, and Yukio. In 1946, amid the devastation of World War II, Tadao and his father Shigeru started Kashio Seisakujo, a company whose main product was a cigarette holder called a Yubiwa pipe. After seeing early versions of electronic calculators at a Tokyo trade show in 1949, Tadao, an engineer, used the profits from the Yubiwa pipe to invest in the development of the company's own calculators. The business became Casio Computer when Tadao's brothers came to work with him in 1957. ("Casio" is an Anglicized version of the family name "Kashio," much as "Toyota" is of that company's founder's name, "Toyoda.") Tadao presided over years of growth for the company and had a hand in many of its creative milestones. The year of its founding, Casio Computer released the world's first all-electronic calculator, a desk-sized device powered by solenoids rather than the mechanical motors and hand cranks of previous calculators. (This historic invention is roped off in a corner of the museum.) The company followed this invention up with the much more compact Casio Mini, the first personal calculator, which sold more than 10 million units, and the SL-800, an early, lightweight card-sized model. Tadao, a music lover,



A tray of G-Shock Aviation watches being prepared for water-pressure testing

also spearheaded the development of the Casiotone in 1980, one of the first musical synthesizers. As computers and other personal tech devices became more widespread throughout the late 20th and early 21st century, Casio continued to have a hand in them: the company introduced the first digital camera for consumers, the QV-10, in 1995, and it entered the mobile phone market in 2000 with the water-and shock-resistant C-303CA cell phone.

Tadao retired in 1988 and died in 1993, leaving the company reins in the hands of the three remaining Kashio brothers, all of whom are still in executive positions at Casio despite being septuagenarians or older. Each brings his own type of expertise: Toshio, the chairman, is an inventor at heart, involved in research and development of new products. Yukio, the executive vice president, is in charge of manufacturing and the technical end of production. Kazuo, the president and



THE HUMBLE G-SHOCK PIONEERED TRENDS THAT CAME LATER TO LUXURY WATCHES, LIKE BULKY, MULTI-PART CASES, UNCONVENTIONAL MATERIALS AND BLACK-ON-BLACK COLOR SCHEMES.

CEO, is the sales and marketing guru, and has been the driving force in the company's recent push to refocus on its watch business by expanding beyond the lower end of the market and introducing more sophisticated products with higher price points. In his large office, surrounded by picture windows with breathtaking views of the Tokyo skyline, Kazuo Kashio says that the introduction of new products like the Oceanus in recent years is part of a larger strategy of growth in the watch market. "When I think about the future," he says, "I realize that if we only serve the market with existing products, then that market will not grow very much."

WATCHES JOINED CASIO'S product portfolio with the debut of the Casiotron digital watch in 1974. The Casiotron, which showed the precise minutes, hours, and seconds, along with the date, day, and a.m. or p.m. indication, all on an LCD screen, was the world's first watch with a digital automatic calendar. Unlike with other quartz and mechanical watches, no hands or date disks meant no need to ever reset the calendar based on the length of the month. The Casiotron embodied the philosophy that the company still follows for its watches — to treat them not just as timekeepers but as information devices for the wrist. The company followed it up

The museum at Casio's corporate headquarters in Tokyo



"THE G-SHOCK'S LOOK WAS SO DIFFERENT FROM CONVENTIONAL WATCHES AT THE TIME. IT WAS AMAZING TO SEE PEOPLE STAND IN LINE TO BUY THE NEW MODELS."

— KAZUO KASHIO



with other multifunction models, like the Databank Telememo, a high-tech watch that could save telephone numbers in its memory, and the PELA FS-10, a superthin, lightweight digital watch that Casio says has the distinction of being the first-ever wristwatch to sell one million units. Others included calculator, dictionary, and even thermometer functions (this last evolved into today's Pathfinder line). Casio also claims to be the first to use plastic for a watch case and strap, beating Swatch to the punch by several years.

The wildly popular Casio G-Shock was the game-changer for Casio's time-piece division. The concept came from the fertile imagination of Kikuo Ibe, to-day Casio's chief engineer of module development at its timepiece division. Ibe works at Casio's research-and-development facility in Hamura, where I spend the second day of my Casio tour.

Ibe, who still projects a youthful vigor and takes pride in his contributions to Casio's most successful watch, loves to tell the story of its creation. In 1981, Ibe broke a watch, given to him by his father, when he dropped it. Upset at the loss of the precious timepiece, he set about the task of making a watch that would be indestructible. Ibe developed the first prototype for such a watch in his workspace at Casio, and dropped it from the first floor window of the building. It broke. When he developed another prototype that withstood the first-floor drop without breaking, he dropped it from the second floor. That one also broke. Several prototypes later, he arrived at one that could fall from the third floor without breaking, but still sustained damage to the movement inside. Ibe ultimately found the missing piece of the puzzle after watching a young boy playing with a rubber ball. He reasoned that a watch whose movement was suspended inside a protective rubber casing could absorb shocks and impacts to the case. The result was the very first G-Shock watch, with a digital display, shock-protected movement, and a hard, plastic case with a protruding bezel to guard against the crystal shattering if the watch was dropped. The case was integrated into the urethane strap, which also acted as a shock absorber: it was cleverly curved so that the watch would never land flat on its caseback. This concept is the foundation of the so-called "Hybrid Mount" case construction — which combines lightweight resin with strong metal parts — that Casio still uses in G-Shocks and other models.

That first, now-legendary G-Shock watch, officially designated with the model number DW-500C, actually received a lukewarm response in its native Iapan, which was not yet ready for such a large, offbeat timepiece, when it was introduced in 1983. However, it sold very well in the United States, where customers appreciated its toughness, unconventional sporty design, and accessible price point. The chunky G-Shock was a breath of fresh air in an era known for thin, compact watches, and quickly caught on with outdoorsmen and athletic types who finally had a watch they could wear for their rugged pursuits without worrying about breaking it.

G-Shock has been Casio's leader collection ever since. It is now available in numerous colors, several styles and even in some collectible limited editions, many of them associated with the celebrities that have become fans (and in some case, paid "ambassadors") of the brand, which include actors, athletes, and musicians, primarily rap and hiphop stars like Kanye West and L'il Wayne. Recent models have boasted specialized functions or attributes specific to the watch, as in the "Master of G" quartet: Frogman, with divers' functions, 200-meter water-resistance and a tide graph; Riseman, with a thermometer, altimeter, and barometer for climbers; Gulfman, with rust-resistant titanium parts; and Mudman, with a dust-and-mud-resistant case structure.

In 1994, Casio expanded the popular G-Shock line into models more suitable for women and teens. Called the Baby-G collection, this line is today a major part of Casio's watch strategy. Baby-G watches are also shock-resistant and water-resistant and they are available in an array of colors and styles (LCD, analog, or a combination of both, round or rectangular cases). Casio's commitment to its feminine-sporty line was evident when it introduced the pop singer Kesha (who, appropriately

enough, sings a hit song called "Tik Tok") as a celebrity endorser this year.

The initially reticent Japanese also, eventually, embraced the watch. Today, high-end Tokyo jewelers proudly display and sell it alongside Rolex, Omega, TAG Heuer, and other luxury sports-watch purveyors. And while a G-Shock collection does not have the cachet (or cash value) of a collection of fine Swiss-made mechanicals, the brand does have its diehard fans who track down every new-color model and limited edition. Even the Casio CEO, an unabashed booster of the G-Shock, was surprised when the watch achieved a level of pop culture cred with the youth. "G-Shock was something very new, with its shock-resistance and durability," Kashio recalls. "It was intended to be a casual watch. We did not expect it to be accepted as a fashion watch so enthusiastically."

All G-Shock models go through a battery of toughness tests, which I witnessed at the R&D labs in Hamura. These include two shock-resistance tests, one in which the watch is dropped from a great height onto a concrete block, the other in which it is hit by a swinging hammer into netting; a

The Casio building in the Shibuya district of Tokyo







Above: The G-Shock Aviation Below: The Edifice EQW-M1100



CASIO PRODUCES 30 MILLION WATCHES PER YEAR. WATCHES ACCOUNT FOR \$900 MILLION OF CASIO'S \$5 BILLION ANNUAL SALES.

water-resistance test, where watches are submerged in a tank under the equivalent of 200 meters of water pressure; and a vibration test, where a machine shakes the watch at high speed. Some models, like the new G-Shock Aviation, undergo a centrifugal gravitational force-resistance test, where a watch is hooked up to a spinning turntable that subjects it to the same continuous acceleration that vital aircraft equipment, like flight data recorders and voice recorders, must withstand before being approved for cockpit use.

The humble, plastic, mass-market G-Shock, in fact, pioneered some of the trends that have emerged only recently in the expensive, luxury end of the sportswatch market: big, bulky, shaped cases; unconventional materials; multi-part case construction; black-on-black color schemes; and an emphasis on hardening the case and protecting the movement from shocks. All of these were novel ideas when the G-Shock made its debut. According to Kashio, "The G-Shock's mostly black look was so different from conventional watches at the time. It was amazing to see people stand in line to buy the new models."

IN THE 1990S, with quartz technology evolving, Casio chose to update much of its watch line around a trio of technological cornerstones: solar-powered rechargeable batteries, radio-controlled multiband atomic timekeeping and the socalled "Tough Movement" concept. In Hamura, Casio engineers explain the nuts and bolts of the various technologies.

The first Casio watch with radio-controlled timekeeping was 1995's FKT-

100L model. Watches using this technology receive signals from towers that transmit time-calibration radio signals calculated by atomic clocks. There are six of these towers worldwide: two in Europe (Mainflingen, Germany and Anthorn, England); three in Asia (Shangqiu, China; Fukushima, Japan; and Kyushu, Japan) and one in the United States (Fort Collins, Colorado). These account for the number "6" in "Multiband 6," the term Casio uses for the technology that enables watches equipped with it to receive signals from all six stations using tiny, highly sensitive antennas built into the movement. The result is a watch that always shows the precise time, whether its display is analog, digital, or a combination, and never needs manual resetting, even if you're changing time zones: the push of a button will indicate the new zone and move the hands automatically.

As Casio loves to point out, sticklers for timekeeping accuracy could scarcely do better than a radio-controlled timepiece: even a very accurate mechanical watch can lose several seconds per day of accuracy; a standard quartz watch can lose several seconds every month; but a radio-controlled watch, the company claims, might lose one second in 100,000 years. Casio is the market leader in radio-controlled watches, with 3 million units sold this year.

"Tough Movement" is the term used for Casio's automatic hand correction technology, wherein a built-in algorithm detects the positions of the hour, minute and seconds hands and shifts their positions if even the smallest slippage has occurred. Thus, the time received from the



radio signals is always precise.

The auto-hand correction, like the radio-wave reception that controls the timekeeping, is powered by a high-capacity solar battery. Solar power in quartz watches originated in the 1970s, and is today most associated with another Japanese watch brand, Citizen, which uses it in its line of Eco-Drive watches. Casio first incorporated this technology in a watch in 2001. Tiny solar panels on the face of the watch converts sunlight (or light from any source, really) into thermal and electrical energy that recharges the watch's battery, so the wearer can dispense with the bother and expense of regularly replacing it. In Casio's system, the 10-year battery powers tiny motors that control regular timekeeping functions along with a multitude of others, including chronographs, alarms, calendars, and various sensor functions. Casio's umbrella term for this system is "Tough Solar" technology.

Admittedly, it's a lot of electronic, space-age stuff for a mechanical-watch purist to accept, and for the owner of a new watch to learn — Casio watches come with instruction manuals befitting a new camera or smart phone — but for some, a watch with all these bells and whistles can be a very hassle-free time-keeper.

IN 2004, Casio entered the premium tier of the analog quartz watch market with the launch of the Oceanus line, marketed

The Oceanus, Casio's luxury-sport chronograph, and its component parts



CASIO LAUNCHED THE OCEANUS AS A LUXURY SPORTS CHRONOGRAPH FEATURING BOTH SOLAR AND RADIO-CONTROLLED TECHNOLOGIES.

The new G-Shock Ultimate Tough GX56

> as Casio's first luxury sport chronograph, priced to compete with similar quartz models from Seiko, Citizen, Tissot, Swiss Army, and others. The first Oceanus, which incorporated both solar power and radio-controlled atomic timekeeping, was an ana-digi model with a plethora of features: chronograph, second time zone, calendar, alarm, even a backlight that illuminated the dial when the wearer tilted his wrist. Most newer models, while maintaining all the technology and the nauticalthemed blue color schemes on the dial, are all-analog, less bulky, arguably more luxurious, and priced higher. In 2007, the Oceanus Manta debuted as the world's thinnest solar-powered chronograph. This year's elegant OCW-S1400P model which has a full gamut of complications, including chronograph and world time, sports a titanium case with blue IP highlights and a light blue mother-of-pearl oyster shell in the center of the dial. It's also got the "Tough Movement" auto-hand correction, and retails for \$1,300.

Another premium analog watch recently introduced to the U.S. market that Casio is excited about is Edifice, the brand's new line of high-performance, sporty chronographs. The most advanced model is the EQW-M1100. It incorporates Multi-Band 6 and Tough Solar technology and boasts a chronograph accurate to 1/1,000 of a second. Its multilayered dial has a 3D effect and uses disk hands. The disk hand at 9 o'clock alternates between clockwise and retrograde rotations while the stopwatch is in operation. The 1/1,000-second measurement and 1/100-second measurement are indi-

cated in, respectively, the upper and lower rings of the dial. Other Edifice models have a 1/20-second chrono (with disk hand) and a standard 1-second chrono (with gold-IP-plated case and bracelet). Edifice watches are priced between \$150 and \$500.

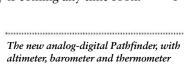
The Pathfinder collection — marketed in the rest of the world as Pro-Trek; a trademark issue necessitated a name change in the U.S. — is an analog-digital model targeted at hikers, mountain climbers, and other outdoorsmen. The first version made its debut in 1995 as an all-digital watch and has evolved since then into the current model, adding solar power in 2002, radio-controlled timekeeping in 2005, and analog elements this year, in the PRW-500 model. This watch is packed with sensorbased functions, including an altimeter, barometer, thermometer and digital compass, along with alarms, world time, LED light and a chronograph. The rugged, ultra-masculine case mixes resin and stainless steel and features oversized buttons with a skid pattern for easy gripping. Prices on the Pathfinder range from \$250 to \$450.

And, of course, the G-Shock line continues to expand. This year saw the debut of the first G-Shock designed in classic pilots'-watch style, the G-Shock Aviation, an all-analog watch. It's got an extrawide, textured, double-layer dial with oversized Arabic numerals and indices in colors (orange or blue) that provide high contrast with the black dial. The large, protected buttons on the side of the case control an array of functions, including a

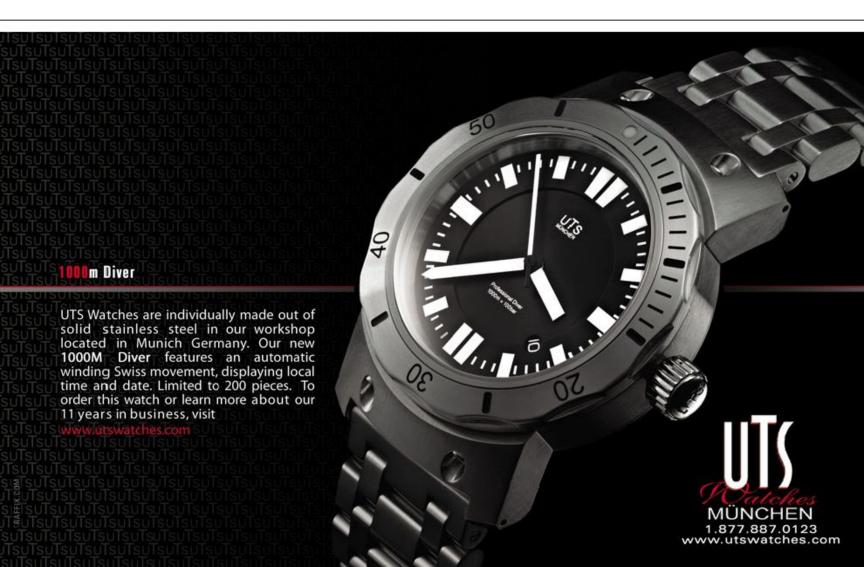
1/100-second stopwatch, world time, day/date, and alarm.

The G-Shock is also looking to reclaim its "big boy" status in these days of expanding case sizes. The G-Shock Ultimate Tough GX56 model is a monstrous 55 ½ x 53.6 mm, the biggest case ever on a G-Shock. It has gel inserts beneath the 12, 3, 6 and 9 o'clock positions on the dial to absorb impacts, and its strap is secured to the case by lug screws. The GX56 is available in the brand's signature black or in "hazard" orange, each selling for \$150. Another new model that I glimpsed in Japan that is planned to hit the U.S. market is a G-Shock (model GW-S560) that uses a thin layer of carbon fiber to strengthen the standard urethane strap, making it nearly as unbreakable as the case. Carbon fiber, of course, has been a popular material in luxury watches the past few years, but Casio believes its new G-Shock model will be the first time it is used as a functional element of the strap.

Casio appears committed to an aggressive strategy for continued growth in its timepiece division. Despite the boom of recent decades in the luxury watch sector, it's been speculated that wristwatches will, perhaps even in the near future, go the way of the dodo — made obsolete by cell phones and other technological devices on which their owners can check the time. That may be so, but judging by Casio's dedication to its wristwatch business, one of the world's foremost producers of such electronic devices doesn't fear that day is coming any time soon.









Rock 'n' roll drummer Eric Singer the "Cat" in the legendary band Kiss has a passion for watch collecting that nearly matches his love of music.







orn in Cleveland, Ohio in 1958, Eric Singer inherited his musical talent from his father, a professional musician. Singer made his first major appearance in 1984, playing drums on tour for '80s rock diva Lita Ford. He

played with Black Sabbath a year later, and eventually became the regular drummer for Alice Cooper's band, playing on three albums since 2000. The drummer first worked with Kiss in 1991, after he accompanied the band's lead singer Paul Stanley on his solo tour in 1989, making his debut on the album Revenge. Singer performed with Kiss until 1996, after which he toured five years with Queen guitarist Brian May. He rejoined Kiss on the band's 2001 reunion tour, replacing the original "Cat," Peter Criss, and donning the costume and makeup for the first time. He has been with Kiss as the permanent drummer since 2004, and on the

SINGER HAS VISITED FOUR WATCH FACTORIES: BLANCPAIN, IWC, ANONIMO AND TAG HEUER (TWICE).



band's 2009 CD, *Sonic Boom*, he also sings. In addition, Singer plays with his own band, E.S.P. (Eric Singer Project). While on tour with Kiss in Germany, Singer sat down with *WatchTime* contributors Elmar Schalk and Nina Bauer to talk about his passions: rock 'n' roll music and his large, eclectic, always-growing watch collection.

WT: Do you wear watches when you play the drums?

ES: Never. Sooner or later, they'd get smashed. Wearing a watch on stage — for me, that doesn't reflect the spirit of rock 'n' roll. It simply doesn't look cool. A concert is there so you can forget all about time and your everyday cares and concerns. It's where I want to be "timeless," so to speak. It's a time out of time, even if it only lasts for a few hours.

WT: But isn't it important to be aware of time when you're on stage?

ES: Of course, but that primarily has to do with my keeping time on the drums. When I prepare for a gig, I put my watch in front of me on the table. Our assistants also pay strict attention to time because it's such a crucial factor. Everyone in our band is highly professional, and that also means being punctual. Many entertainers are big fans of watches. For many of them, watches might be a status symbol — maybe they wear an Audemars Piguet, an A. Lange & Söhne or a Glashütte Original to impress people. Naturally, a watch model can reveal something about the personality of its wearer. If it's a Rolex, most people associate it with success and wealth. Rolex has terrific marketing and has become a brand name like Coca-Cola or McDonald's. Even Kiss is both a brand and a band. You see the masks and you instantly know: that's Kiss. It's similar with Rolex. They make great watches that you can recognize immediately. But most people aren't aware that there are even higher-quality watches on the market.

WT: Is a person usually safe purchasing a well-known brand?

ES: Sure. Years ago, whenever I saw a gold Rolex Day-Date, I always thought,

"That guy must have plenty of money!" Some brands became famous because of specific models. Most people would agree that alongside the Rolex Datejust, the best-known models are the Submariner and the Sea-Dweller. Those are great watches for every occasion: they look classy with a business suit and they also look sporty on the beach. That's why they're so popular. The Omega Speedmaster is another model with

cult character. I also own TAG Heuer's Monaco, Carrera Fangio Limited Edition and Aquaracer Calibre S Lewis Hamilton Limited Edition. All of these are classic sport chronographs. I also love cars, and TAG Heuer has always been associated with auto racing. I even own a vintage model of the Silverstone, which TAG Heuer recently re-released.

WT: That's quite a collector's item! Where did you find it?

ES: I discovered it a few years ago when we were on tour in eastern Germany. I love to rummage around in antique shops. In a shop window, I saw the Silverstone with a smoke-colored dial, so I went in and bought it from the shop's owner for 600 euros. A watch like that one is really hard to find. Today that model typically trades for up to \$4,000. I could hardly believe no one had discovered it there in the window before I did.

WT: What do you associate with TAG Heuer?

ES: I love cars, auto racing and this watch brand, with all its famous models like Autavia, Monaco, Carrera, Monza and Camaro. I really appreciate the fact that TAG Heuer continues to produce watches with that familiar style, although these days they're more suitable for daily wear, with improvements in the reliability of the movements and waterresistance of the cases. I've visited the factory twice already. I know the brand doesn't have the status of a classical manufacture like Glashütte Original or A.



Top: The Manometro Chronograph from Giuliano Mazzuoli. Above: the subdial on Singer's Maurice Lacroix Pontos Décentrique stays set to the time in L.A.

Lange & Söhne, which make their own calibers, but I like TAG Heuer because of their terrific sport watches and because of the company's history. They're always dreaming up something new, like the Monaco V4: with its belt drive, its tiny ball bearings and its linear oscillating weight, that watch is a technical marvel! The Monaco Sixty Nine debuted in 2003: it's a hand-wound mechanical watch that you can flip over to reveal a quartz watch with a digital display. I wish they would make these concept watches affordable for the general public, but maybe that's impossible because of the cost factor. For many years, I've been collecting chronographs from the era prior to TAG Heuer. I like stainless steel watches with two or three counters and round or angular buttons. My collection also includes a few classics from the '40s in perfect condition. My old Longines Flyback is really something special: I found it in an obscure shop and I paid an unbeatable price for it.

WT: Have bargains like that become rare?

ES: Those days are definitely over! As Swiss watches became more popular about 10 years ago, this collecting craze began, where everybody started to comb the antique shops searching for classic models. Then eBay came along and transformed the whole market. I remember finding gorgeous watches on eBay for about \$200. For example, there was this marvelous Jaeger-LeCoultre Master Mariner in stainless steel: it looked as good as new, and I paid only \$100 for it about 15 years ago! I like to go to watch fairs and flea markets, hoping to find better offers there than on eBay.

WT: You really seem to be crazy about watches.

ES: Sometimes I can identify a person's watch from all the way across the room. I'm familiar with just about all the models. I have fun watching old movies on YouTube to find out which watches the actors wore. Of course, many brands use product placement: Omega with James Bond, TAG Heuer with Formula One. Sylvester Stallone helped put Panerai on

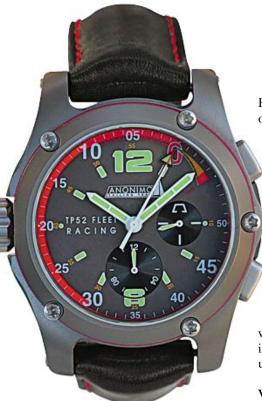
the map when he wore one in the movie *Daylight*. Jason Statham did the same in *The Transporter*.

WT: Do you prefer a certain style?

ES: I love Italian design. You can immediately recognize Italian watches because they're big and bulky. Instead of being delicate and filigreed, they seem more primeval — like a submarine. Their quality is finally improving and of course, this means they're more expensive. Italian brands just have a certain look, like Panerai, which has become very popular. Are you familiar with Giuliano Mazzuoli? He's famous for designing pens, and now he makes watches like the Manometro, which looks like the pressure gauge on an old air pump; I own the chronograph. I like the vintage look of his watches - simultaneously simple and very unconventional. I also have a Locman Latin Lover Automatic. It's a big watch and it's just fun. Anonimo is another really high-quality brand. Unfortunately, it hasn't yet been able to market its watches as well as, say, Panerai. Nobody makes a better case than Anonimo. The quality and the construction are really impressive. Needless to say, they use Swiss movements from ETA, like most Italian brands. But take a look at Panerai: ever since they began making their own calibers, they've moved into a higher league. But I still like the older Panerais because they represent what that brand has always been about: big, functional divers' watches for the Italian Navy in World War II.

WT: Do you see any parallels between chronographs and your calling as a drummer?

ES: As a drummer, I'm the timekeeper for the band. I set the pace, the tempo and the rhythm. I work very precisely and I have the same high standards of quality for my work as a watchmaker has for his. It's also important for me to arrange my drum set so that it looks good. It's like a watch: has it got an attractive case, a beautiful strap and an interesting dial? But what also counts for me as a musician is to bring emotion and passion into play. And there should also be inner values.



Anonimo ranks among Singer's favorite brands.

The TAG Heuer Monaco



Few people understand what the interior of a watch's case really contains. Many brands invest so much time and effort in

creating a beautiful movement with terrific finishing, but then they seal the case shut so no one can admire that inner life. It's often like that with people, too: you might have inner qualities and strength of character, but most people won't recognize your real character, except for the people who are really interested in you. Let's say you fall in love with a particular watch brand: you'd want to learn more

about its history and how it makes its watches. That way you really gain insight into the inner life of a watch and its manufacturer.

WT: Do you own watches for special occasions?

ES: Yes. At Christmas I often wear the Jaeger-LeCoultre that my father gave me. I like to wear particular watches at particular moments. When I'm at home, and even if I'm not planning to go out, I like to wear two watches at the same time. I never get tired of looking at my watches. The one I choose to wear depends on my mood, my choice of clothing and the activities I'm planning, like playing sports.

WT: Do you have a favorite brand?

ES: Jaeger-LeCoultre has always been close to my heart. I'm very sentimental about it because my father gave me one as a gift. When I began to understand how watches are made, I realized that JLC made movements for Cartier, Audemars Piguet and IWC. That's why I feel that JLC has always been underestimated. Many people think that Patek Philippe, for example, is the crème de la crème. For me, it's brands like TAG Heuer, Blancpain, Breguet, IWC, Glashütte Original, Panerai, Anonimo and many smaller ones, but also brands that are gradually becoming established, like Ball and U-Boat.

WT: How did your passion for watches begin?

ES: The first watch that I received as a little boy was a German model. My father was a musician and a bandleader on big "AT HOME, I LIKE
TO WEAR TWO
WATCHES AT ONCE.
I CHANGE THEM
AS OFTEN AS FOUR
TIMES A DAY."



cruise ships like the S.S. United States. He spent three years in the early 1960s sailing between New York and London, onward to Paris and back again. And he always came home with presents for us: stuffed animals with built-in music boxes, clothing and perfume for my mother. My first wristwatch came from one of those trips, but I can't remember what brand it was. I still have it, though. It's very small because it's meant for a boy's wrist.

WT: Was your father also interested in watches?

ES: He owned a Gallet Petite Chronograph — it was a watch no bigger than a quarter. He also had a gorgeous Jaeger-LeCoultre with full calendar, moon-phase and rectangular case. As I said, I like to wear that one on Christmas. I think my father had pretty good taste in watches, although he didn't really know very much about them.

WT: Do you take several watches along when you go on tour?

ES: Usually three to five watches, even on short trips to Europe. I know it's crazy, but now and then I change my watch as often as four times a day. A different model sometimes appeals to me more in the morning than in the evening.

WT: Does that depend on your mood?

ES: Yes, but sometimes I just want my watch to match my clothes. Today I decided to wear this Maurice Lacroix watch: it's a Pontos Décentrique GMT

with a 45-mm titanium case, a titanium dial and a second off-center time zone. It's one of a limited edition of 999 watches. At the push of a button it will show the moon's phase and whether it's day or night in L.A. It's very simple to operate, too. The date display is very important for me when I travel from California to Europe because the time difference can be nine hours or more. I know many people who leave their watch's main display set to the time in their home zone be-

cause that helps them to feel a stronger emotional connection with their family. When you go to another country, you simply press one button to select the second time zone, which then appears inside a little window. Those are really useful functions for globetrotters like me. But above all, for me, watches are works of art: I'm fascinated by their mechanisms and the artistic handcraftsmanship that goes into them. My grandparents were tailors in Germany. It's funny, but I have a weakness for clothes, shoes and leatherwear: I guess it's in my blood. When I choose clothing, I always pay attention to the details and I'm not shy about going up to a stranger and asking him what he's wearing. The other guys in the band sometimes kid me about that. They're like, "Hey, Eric, feel the material of my shirt!"

The Blancpain Fifty Fathoms was Singer's Christmas gift to himself in 2009.





WT: Which of your watches' complications do you use?

ES: I love complications, although my eyes are beginning to weaken! I own an Arnold & Son True North Perpetual in white gold with an alligator strap — a wonderful wristwatch with antique flair. But I would never take that one along on a trip because if I lost it, the loss would be unbearable. It's for special moments, like my Portuguese Chronograph from IWC, an older model that's no longer made. It has a black dial and silver milling, a stainless-steel case and a black crocodile-skin strap. Lately I've been wearing a Panerai Submersible PAM 170 with a titanium case. I like it because it's a large watch, but lightweight. This Panerai is an older model from 2003 with an anthracite-colored dial. Not many models were manufactured in this gray color: I also own a PAM 86 with a brushed case. These models are more refined, I would say, but they still have their traditional Panerai look. Now Panerai has a single-push-piece chronograph with an eight-day movement and a blue dial. Ordinarily I tend to prefer more clean-looking models, but this watch looked great on my wrist: its color combination gives it such a rich, antique look. For me, one of the truly useful purposes for a chronograph is that you can keep tabs on your parking meter; I don't like to get parking tickets! And, at rehearsals, I like to time the length of a song or check to see how long my practice sessions are.

WT: Which do you prefer: automatic winding or manual winding?

ES: I appreciate both. Watches often have similar movements, mostly from ETA. Sometimes you'll have the same movement inside a \$1,000 watch and a \$5,000 watch, and you're paying primarily for the brand name. If you want to buy a watch because of a particular caliber, then you should devote careful study to the subject. I own a Blancpain Fifty Fathoms. When you hold it in your hand, you can feel that it's a real wristwatch: it has its own manufacture caliber, and there's genuine quality in there! I just ordered a Blancpain 500 Fathoms, the latest model, with a titanium case. Some people might

say, "Oh, it looks too kitschy, with its 48 millimeters and its overloaded dial. That's not a traditional Blancpain." But it still has a classical appearance and its quality is impeccable. I think there's definitely a market for it. I visited Blancpain two years ago and I saw how they build their watches. Ever since, I've appreciated the brand even more. Besides TAG Heuer, I've also visited the manufacturing sites of IWC and Anonimo.

WT: What qualities do you look for in a watch?

ES: What appeals to me about a watch could be the appearance, size, movement, complications or the history of the company that makes it. For example, I own about 10 different Jaeger-LeCoultre models, including a Master Réserve du Marche and a Reverso Duoface in stainless steel. I'm often asked, "If a collector were to limit himself to just 10 watches, which ones should he definitely have in his collection?" My answer: classic watches like the Omega Speedmaster and the Rolex Submariner. As an elegant evening watch, I would suggest a Patek Philippe Calatrava or a Breguet. I prefer sporty watches, so I bought Breguet's Transatlantique Flyback Chronograph. Ordinarily, a new watch won't increase in value for the first five or 10 years after it's bought. But Panerais, and certain models from Rolex or Patek Philippe, do become more valuable quickly. Look at this T3 Chronograph from Audemars Piguet. I always wanted to have this model. It cost about \$20,000 new, but in the meantime it's already trading for as much as \$40,000.

WT: Did you ever buy a watch and regret the purchase afterwards?

ES: Oh, sure. Whenever you buy something expensive, you wake up the next morning thinking, "Why did I buy that? That's crazy!" Let's face the facts: I certainly don't need another pair of shoes or another wristwatch. But that's what you work for, isn't it? So you can enjoy the fruits of your labor. I don't claim to have the toughest job in the world. But it still isn't easy, constantly being on the road with Kiss — all the responsibility and

everything we give for the show. It really is hard work. We put so much passion into our jobs. I've been doing this steadily for the past 25 years and sometimes I have to sacrifice friendships or family life because I'm traveling so much. For all that, I want to give myself a little reward sometimes. We had a very successful year in 2009, so I gave myself a Blancpain

Breguet's Transatlantique Flyback Chronograph



SINGER USES CHRONOGRAPHS TO TIME THE LENGTH OF SONGS AND OF PRACTICE SESSIONS WITH THE BAND.

Fifty Fathoms. It was my way of saying, "Merry Christmas, Eric!"

WT: Do you ever sell watches from your collection?

ES: Very rarely. I find it hard to let them go; they're like children! Some of them represent particular phases in my life. I can remember exactly where and when I got them. My Glashütte Original Sport Chronograph is a good example of that. I bought it in a little shop on Ku'damm in Berlin in 2005. I associate very happy memories with these experiences. Collecting watches is part of my life. It represents my travels and all the places I've been, and it also stands for the successes I've had. For example, I bought my IWC Portuguese Chronograph right after I played with Kiss in makeup for the first time. That was in Sydney in 2001. My collection is like a photo album: I look at my watches and I remember immediately.

WT: Have your preferences changed over the years?

ES: Absolutely. In the beginning I collected nothing but old watches and I was positively obsessed with Jaeger-LeCoultre and Heuer. Watch brands are like a rock band: each one reflects a particular style. The Rolling Stones would never try to sound like Led Zeppelin, and Kiss is equally unique in our music, outfits and image. When a watch company creates a look, the brand ought to stay faithful to that look. If you compare an old Breguet with a modern model, you can instantly see the family resemblance. Or take Hublot: that company was on the verge of bankruptcy and then made a comeback with the Big Bang, which combined various materials - gold, rubber and ceramic — in different colors. Now it's a very fashionable and cool brand that has also inspired other manufacturers to mix various materials. The Raymond Weil Nabucco Chronograph is another one of my favorite watches: it's made completely of titanium with carbon and steel, and it looks fat and funky. My car - an Audi S4 in DTM style — also has many parts made of carbon. I appreciate that look in a car, so it also appeals to me in a wristwatch.

Zenith's fling with fashion is over. Now, says the brand's CEO, Jean-Frédéric Dufour, it's the movement that matters.

Inside





Nataf, El Primero, and technical features in general, took a back seat to the brand's newly flamboyant styling and glossy advertisements showing the watches on ball-gowned beauties. That approach was at odds with Zenith's long-established identity as a maker of high-quality, in-house movements: the concepts of "fashion" and "manufacture movements" don't go together, Dufour said in an interview with Watch Time at Zenith's head-quarters in Le Locle, Switzerland. "'Manufacture watches' means long-term, slow-moving, slow-changing. 'Fashion' means two to three collections a year, and something where you spend your money without thinking too much."

Nataf left Zenith in the spring of 2009 after eight years in charge. Immediately before joining Zenith, Dufour had spent seven years at Chopard (he had done an earlier stint there, from 1993 to 1997), and before that worked at Blancpain (from 2000 to 2002) and Ulysse Nardin (1997 to 2000). Most of his pre-Zenith experience was in product development, but he also held sales and marketing positions.

Even before taking the Zenith job, Dufour had noticed that El Primero, as appealing as it was, had a big problem: the movement was hiding its unique selling point — the ability to measure time to the 1/10 of a second — under a bushel. "I looked at the watch to try to understand how the 1/10-second was displayed," he said. He soon realized that it wasn't, or at least not in a convenient, or obvious, way. Only through intense squinting could you discern (or make an educated guess about) the chronograph seconds hand's position between two seconds markers. When it came to tooting its own precise-to-the-1/10-second horn, the watch was a dud.

As soon as he got to Zenith, he conferred with Zenith's head of product development, Yves Corthésy, about devising a way to make the 1/10-second feature more noticeable and easier to read.

The result, a model called El Primero Striking 10th, was unveiled five months later, in January of this year. The watch shines a spotlight on its 1/10-second-timing ability by means of its unusual chronograph seconds hand. Instead of rotating once every 60 seconds, as does a standard chronograph seconds hand, it rotates every 10 seconds. This means the 10-second increments are much bigger and hence easier to read. "You can talk about high frequency, but it's very abstract. Here you can actually show the high frequency," said Dufour. So that the wearer doesn't have to count the hand's rotations to know how many seconds have elapsed, there is a 60-second counter at 3 o'clock. (For more on the Striking 10th, see *Watch Time's* test of the watch in the August 2010 issue, page 88.)

Dufour said it's especially important to emphasize Zenith's chronograph-making expertise because so few companies make in-house chronographs. After all, he pointed out, Patek Philippe's in-house Caliber CH 28-520 IRM QA 24H, launched in 2006, was the brand's first chronograph in 20 years that was not based on a Nouvelle Lemania ébauche. And it was just last year that Breitling, which, after all, specializes in chronograph watches, launched its first in-house chronograph of the modern era: the B01. "After being in the watch business for 17 years, and being part of the team that developed chronographs and

Christophe Colomb: Spin Meister

It's a new spin, literally. Zenith's Christophe Colomb watch, unveiled at an event in Hong Kong in July, incorporates an idea Zenith first introduced in 2008, but altered to fit the brand's revamped marketing strategy. That idea is the use of gimbals, like those once used on marine chronometers, to keep the watch's escapement on a horizontal plane regardless of the watch's position. When the watch moves, the gimbals holding the escapement spin to keep the escapement parallel to the ground. Balances are most precise when they are horizontal because they are not subject to the effects of gravity.

The first Zenith watch to incorporate the idea was the Defy Classic Tourbillon Zero-G, whose tourbillon cage was mounted on gimbals (Zenith uses the term "Zero-G," for "zero gravity," to refer to the gimbals device). Last year, Zenith incorporated it in the Academy Zero Gravity Tourbillon.

The Christophe Colomb is the first watch to use the gimbals idea with a non-tourbillon escapement. The watch is more in keeping with the brand's new (or actually old; see accompanying interview) identity as a technically oriented, rather than fashion-oriented, brand than was the Defy model of 2008, says Zenith CEO Jean-Frédéric Dufour. "That was more fashion than manufacture," he says. The case of the Defy was thicker and the gimbals feature less prominent. The styling of the watch was in-your-face glitz. For the Christophe Colomb, Dufour decided on a more sober design, with a thinner case (45 mm in diameter) designed to showcase the spherical escapement cage (which alone has 166 parts). The cage protrudes from both the front and back of the case in two transparent domes. In its promotional materials, the company emphasizes the watch's links to the marine chronometers of yore because they, too, were mounted on gimbals.

The Christophe Colomb (Christopher Columbus), whose name is meant to evoke the pioneering spirit in which the watch was designed, contains the hand-wound Academy Caliber 8804 with El Primero escapement (36,000 vph). There will be 25 pieces each in white and rose gold, at \$209,000 each. Dufour says there are more gimbaled watches to come, with added technical features, including one day, perhaps, a chronograph.







The launch of El Primero Captain this year brought the opening price for the El Primero collection down to \$6,900.

DUFOUR SAYS ZENITH
MUST SHINE A SPOTLIGHT
ON ITS CHRONOGRAPH
EXPERTISE.

CONTINUED FROM PAGE 170

mechanical movements, I know how difficult it is to make a good chronograph," Dufour said.

In short, there are very few chronograph movements out there (by *WatchTime's* count, fewer than 10 brands make inhouse chronographs) and Dufour wants Zenith to get credit for having one of them. The vast majority of chronograph watches contain either an ETA 7750 or an ETA 2894, he points out. He puts production of the former at 1 million per year, and the latter at 300,000. This means that just 14 percent of the 1.5 million chronographs made each year contain a movement other than the 7750 or the 2894. El Primero watches are in this relative handful, and consumers need to know that, he said.

DUFOUR HAS ALSO begun revamping the rest of Zenith's collections, whittling the brand down to a shadow of its former self. "We've streamlined the collection down to 111 references from 800. Of those 111, 60 are new." The collection was topheavy, with a lot of tourbillons, Dufour said. He retained such bestsellers as the power reserve and the Chronomaster Open. The brand now contains three men's collections: El Primero; Elite, which are automatic dress models; and Academy, models with high complications. There is also a women's collection featuring both El Primero and Elite movements.

Dufour has lowered opening prices for both El Primero and the Elite automatic series, to \$6,900 and \$3,900, respectively. That's because he discovered soon after taking the job that, like technical expertise, reasonable prices are part of Zenith's identity with retailers and consumers. "When I traveled around the world I asked people what should Zenith be, and 80 to 90 percent told me, 'Zenith has to be a *manufacture* brand offering the best value you can get for the price.' This is Zenith's strength, it has always been Zenith's strength and the brand has to return to being that way."

Nataf, who embodied the let-'em-eat-cake zeitgeist of the years before the recession, raised prices 35 percent as soon as he took over, Dufour says. It was an era when Swiss-luxury-watch prices in general went crazy, he noted. "Retailers had people coming into their shops buying watches without asking about prices. They would throw their credit cards on the counter and their only concern was whether the card would go through. From 2005 to 2009, Swiss exports by volume increased by 17 percent, but in money they increased 39 percent. There were big waves and the whole industry was surfing them and increasing prices."

Prices weren't the only thing Dufour has had to pare; taking over in the height of the financial crisis, as he did, he had to lay off one-third of Zenith's employees. The head count is now about 200. "It's like doing war surgery, not Park Avenue surgery," he says of the sudden and urgent need to cut costs he faced when he joined Zenith. "You don't have too much time to think about it."

Dufour is also revamping the brand's distribution, including in the United States, where he has appointed a new brand director, Alain Huy. As of September, Zenith had between 30 and 40 points of sale in this country, and will ultimately have 50 at most, down from 65 in the Nataf era, Dufour said.



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Good Times and Bad

Zenith's back-to-its-technology-roots about-face under its new CEO, Jean-Frédéric Dufour (see preceding interview), marks a new chapter in the company's 145-year history. It follows many others.

The Zenith book opens in 1865, when 22-year-old Georges Favre-Jacot (né Favre-Bulle — he followed the singular Swiss custom of incorporating his wife's name into his surname when he married) opened an ébauches factory on Rue des Billodes in Le Locle, the site of its factory and headquarters today. He named the company after himself. He started out as an établisseur, assembling components made by outside suppliers, but then modernized the factory and was able to make uniform, highquality components himself. Favre-Jacot also turned from ébauches production to making complete watches, clocks and chronometers.

The company's first decades were extremely tough: it saw demand plummet due to the Franco-Prussian War (1870-71) and economic crisis in Russia, one of its biggest markets, writes Manfred Rössler in his book Zenith: Swiss Watch Manufacture Since 1865.

By 1896, though, the company had started to amass what would become a mountain of awards for precision in various competitions when it won a gold medal at an exhibition in Geneva (since then it has won some 1,500 awards, says Dufour). The decades that followed brought many first-place prizes and world records at observatories including Neuchâtel, Geneva and Kew Teddington. (In 1954 it broke the record for the most prizes ever won for series-produced wristwatches at the Neuchâtel Observatory.)

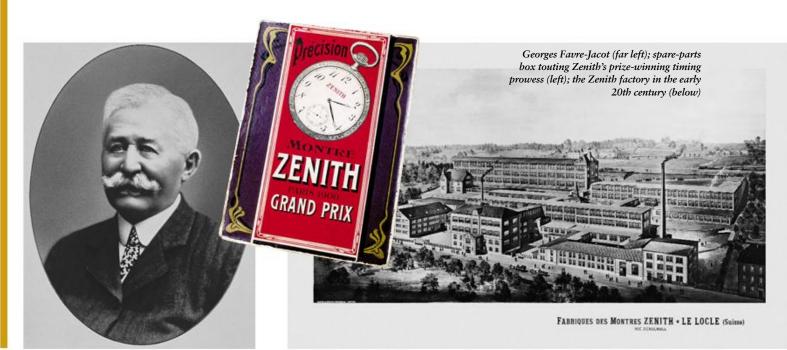
The name "Zenith" first appeared in 1897, when it was used

on a collection of pocketwatches. When Favre-Jacot retired, in 1911, his nephew, James Favre, took the helm, and changed the name of the company to "Zenith." In the coming decades, the company would become a major manufacturer not just of watches, but of a huge range of other timers, including dashboard and cockpit clocks, table clocks, timing fuzes for bombs and deck watches.

Despite the company's technical prowess, Zenith would experience more than its share of financial uncertainty as the 20th century wore on. From at least 1911 until the beginning of World War II, Zenith's biggest shareholder was the Neuenburger Kantonalbank, a major Zenith creditor (Neuenburg is the German name for Neuchâtel). When war broke out, the bank sold its share to a company called Dixi. That company's owner, Georges Perrenoud, ran into financial trouble and in 1948 sold Zenith to a bank, Dupasquier-De Montmollin, which appointed its own managers to run it, Rössler writes.

The company did not fare well, and in 1960, another boss, Leonard Butscher, was brought in to straighten it out. It made a series of acquisitions, first of its chronograph supplier, Martel Watch, and then of Movado and Mondia. A holding company named Mondia-Zenith-Movado was formed in 1969.

That year, Zenith unveiled the most famous caliber in its history, the El Primero automatic chronograph. It did so during a tight, three-way race with the Japanese company Seiko and a consortium that included Breitling and Heuer (now TAG Heuer). All three parties wanted the distinction of launching the world's first automatic chronograph, a goal that had proven exceptionally elusive due to the difficulty of fitting both a chronograph mechanism and a winding rotor in the



same movement. El Primero was not the first automatic chronograph to make it to market (Seiko's Caliber 6139 was), but it was the first to be unveiled to the public. (Contrary to popular belief, Rössler writes, El Primero got its name, which is Spanish for "the first," not because Zenith claimed it was the first automatic chronograph but because it was the first automatic chronograph that could measure time to the 1/10-second, a feat made possible by its 36,000-vph frequency.)

Zenith's glory was short-lived. The arrival of the first quartz watch, which Seiko unveiled in 1969, and the quartz boom that followed, stole El Primero's thunder. In 1975, Zenith stopped making El Primero movements.

By then, the company had changed hands again. In 1972, the U.S. electronics company Zenith Radio Corp., with which Zenith Watch had had no prior connection, had bought Mondia-Zenith-Movado. The new owners decreed that all of Zenith's mechanical-movement inventory, along with all equipment used to make mechanical movements, should be discarded. From then on, the Zenith bosses said, Zenith would make only quartz watches.

When prices for digital watches plummeted later in the decade, Zenith Electronics (as it was by then known) sold Mondia-Zenith-Movado to a Swiss consortium that included Dixi SA (the same company it had been connected with in the 1940s), then owned by Paul Castella. Due to a trademark conflict between Zenith Electronics and Zenith Watch, the latter was not permitted to sell watches in the United States or Canada.

Castella kept Zenith and Movado together in one company, Zenith Movado Le Locle SA, and incorporated Mondia into Dixi SA.

In 1983, North American Watch Corp., owned by Gedalio Grinberg, bought the Movado brand, breaking up Zenith Movado Le Locle.

The next year was a huge one for Zenith: under its chief François Manfredini, the company resumed production of the El Primero. It did so after Ebel placed an order for El Primero movements; a Zenith employee named Charly Vermot had saved some from the pre-Zenith Radio Corp. era and Ebel had incorporated them in a watch that it had successfully test-marketed.

In 1986, Rolex decided to use El Primero, in a modified, 28,800-vph version, in its Cosmograph Daytona 4030. The company would continue to use El Primero in its Daytona until 2000, when it launched an in-house automatic chronograph caliber, the 4130. A handful of smaller brands, including Concord, Panerai, Daniel Roth and Parmigiani, have also used the movement.

In 1994, Zenith launched another caliber still vital to the company today: the Elite extra-flat. Today, the Elite and El Primero are the pillars of the Zenith brand.

LVMH Moët Hennessy Louis Vuitton bought Zenith in 1999, and made heavy investments in it, including the machinery that enables Zenith to make between 70 and 80 percent of its movement components. Thierry Nataf became Zenith's chief in 2001, and changed the brand's marketing strategy so that it focused on fashion rather than technology. He also negotiated with Zenith Electronics to allow Zenith watches into the U.S. and Canada in exchange for paying a royalty to the electronics company for each watch sold here (this agreement is still in effect).

Jean-Frédéric Dufour became the company's CEO in 2009 and has vowed to restore its identity as a technologically innovative, value-oriented brand.



A 1920 marine chronometer (far left); a 1962 hand-wound chronograph with 45-minute counter (left); the original El Primero (right)







n September, the Italian fashion giant Gucci unveiled three new men's watches in its new G-Timeless collection: a three-hands date, a chronograph and a GMT. All three contain ETA automatic movements. You might say the move is one (very) small step for men's automatics, but one giant leap for Gucci, which makes just a few men's watches and even fewer mechanical ones.

Thirteen years ago, the Florence-based firm brought its watch business in-house, buying out its contract with its long-time licensee, the late Severin Wunderman. Since then, Gucci has pretty much ignored the men's watch category. It is one of a series of inscrutable decisions Gucci has made in its ongoing effort to master the luxury watch business.

Now a new CEO is determined to solve the riddle of Gucci's struggling watch division. Patrizio di Marco took over as president and

CEO of Gucci last year after a successful eight-year stint as CEO of Bottega Veneta, a sister brand in the Gucci Group. (The Dutch-based Gucci Group N.V. consists of seven luxury-goods brands: Gucci, Bottega Veneta, Balenciaga, Boucheron, Sergio Rossi, Stella McCartney and Yves Saint Laurent.) Di Marco makes no bones about Gucci's watch troubles. "This is a busi-

DIPPING ITS TOE IN MECHANICAL-WATCH WATERS IS ONE OF A NUMBER OF CHANGES THAT GUCCI HAS MADE TO ITS WATCH BUSINESS.

ness that has lost ground over five years," he told *WatchTime*. "The company tried to elevate and do something with the watches. The results show essentially that something wasn't working. We lost approximately 30 percent over five years. The company made a number of mistakes. That's a fact."

To remedy that, di Marco has hired a respected watch industry veteran, Michele Sofisti, a former president of Omega, Swatch and Christian Dior Watches, to run Gucci Group Watches (GGW), Gucci's Swiss-based watch subsidiary. Together they have orchestrated what di Marco calls "a necessary relaunch" of the Gucci watch franchise.

One component of the relaunch strategy is to target men. "We want to attract male consumers," Sofisti says.

"We must recognize that Gucci offers a variety of products for men and the collection is quite large: bags, clothing and shoes. We must match it with our watches. It's not a segment that we can abandon. It's very important."

He and di Marco moved quickly last year to develop the new men's mechanicals for 2010. They complement men's quartz watches in 38 mm and 44 mm cases in the G-Gucci, G-Chrono and I-Gucci series. Sofisti acknowledges that Gucci's men's collection is small. "That's because the line was primarily for ladies. It was completely out of balance." That will change now, he says. "For next year we are dedicating almost more attention to the men's watches than the ladies' watches. We will keep moving on the mechanical watches."

DIPPING ITS TOE in mechanical-watch waters is one of a number of changes that Gucci Group Watches is making under di Marco and Sofisti. This year Gucci cut the number of watches in its collection (called SKUs in the trade, short for "stock-keeping units") by 50 percent. It has also adjusted its retail prices, which di Marco says had risen too sharply during the boom years from 2005 to 2008. Today the majority of Gucci watches sell for between \$700 and \$2,000. In the fashion-watch category, Gucci has its own niche, Sofisti says, above moderately priced brands like Guess, Armani and Dolce & Gabbana, but below pricier brands like Chanel and Hermès.

Gucci, of course, is a fashion god. Watches account for just a fraction (4.6 percent) of its sales, which totaled €2.66 billion (\$3.2 billion) in 2009. Gucci bags and other leather goods are the brand's core business, with nearly 60 percent of sales (€1.30 billion/\$1.84 billion), followed by shoes and ready-to-wear (both at 14 percent of total sales). Watches, however, hold a special place in the Gucci product lineup. Di Marco understands Gucci's legacy as the first great fashion watch. He made a point of visiting the Baselworld show in March, where Gucci exhibits watches and jewelry in a prominent space next to Breitling and across



from the Swatch Group in Hall 1.0, the main watch hall. "Gucci has a legitimacy in watches," he said then. "Forty years ago, much before any of the [fashion] names on this floor or on the second floor [of Baselworld], Gucci was actually doing things in this industry." Moreover, while Gucci watch sales are dwarfed by those of leather goods, they amount to €104.2 million (\$147 million). "That's not peanuts," di Marco says.

Watches are also exceptional in that they are the only Gucci products not made in Italy. "Gucci is completely Italian-made," explains Sofisti. "We are very strong on that. The bags, the shoes, the clothing, the jewelry, everything is made in Italy. Watches are the only exception. Watches must be made in Switzerland."

GGW, which Gucci established after it reclaimed its watch business, employs more than 200 people in two facilities in Switzerland, its headquarters in Cortaillod, outside Neuchâtel, and its factory in La Chaux-de-Fonds. However, the watch division's "exceptional" status as the only non-Italian-made product has bedeviled Gucci since it took over the watch business. The mother house in Florence has struggled to integrate the watch company into its corporate structure and culture, particularly as Gucci went through various management changes over the past decade. At one point, it made GGW an independent firm within the larger Gucci Group, responsible for all the group's watch brands (Gucci, Bédat & Co. [since sold], Boucheron, and Yves Saint Laurent) and run by an experienced Swiss watch industry executive, Jacques-Philippe Auriol, formerly with the Richemont Group.

A few years later, it abandoned that structure in favor of one where each brand ran its own watch business. Auriol was let go and GGW was folded into the Gucci brand organization where it was run by then Gucci CEO Mark Lee, a fashion maven with zero watch experience (see "A Gucci Watch Chronology" sidebar). As a result, the pendulum in Gucci's product development strategy swung toward creating striking single

items. "The strategy was to produce iconic design watches with different cases and different elements," Sofisti says. "Each one was a single watch, in a sense. We had too many SKUs. Everything was different. Beautiful but different." In addition, says di Marco, "There was so much emphasis on the higher price level. It was a bit strange."

DI MARCO AND SOFISTI have initiated a new product development strategy with an emphasis on product families rather than single items. Says di Marco, "When we took over, the first step we had to take was to get all these products into a few families." The family approach enables GGW to manage component inventories better. One example: one case style can serve the entire collection as opposed to creating a unique case for each clever new design.

Going forward, Gucci will emphasize four families of watches. G-Timeless, launched this year, is a new line of clas-





sic watches in three sizes for men and women. They include the new men's automatic watches, all of which feature 44-mm-diameter stainless-steel cases waterresistant to 100 meters, dials with polished diamond patterns in the center, sapphire crystals with nonreflective coating and leather straps or steel bracelets with deployant buckles. They are powered by ETA automatic movements. Suggested retail prices are \$1,295 for the three-hand date model, \$1,595 for the GMT model, and \$1,850 for the chronograph model.

Classic Feminine, launched last year, is a ladies' collection that includes the new, small G-Frame watch with a mirrored dial in an elegant square or rectangular case; the G-Gucci; and the rectangular Tournabuoni.

The Fashion Family is primarily for women, although it includes the I-Gucci digital watch series, some of which are men's models. New to the collection this year is the U-Play watch, which comes with an interchangeable bezel and bracelet set in three different colors and materials. A fourth family, consisting primarily of gold jewelry watches, will be developed later, Sofisti says.

WATCHES ARE THE ONLY GUCCI PRODUCT NOT MADE IN ITALY. SAYS SOFISTI, "WATCHES MUST BE MADE IN SWITZERLAND."

All Gucci watch designs are developed and approved by Frida Giannini, the firm's creative director who oversees design for all Gucci-brand products. "We work together," Sofisti says of Giannini's Rome-based design team and the GGW team. "We first have a meeting with her where we present ideas. Then we decide with her what we need: which materials, design, colors, all the smallest details. Then, step-bystep, we produce the first prototype. When it's OK, we go with the first pre-production. There are a lot of steps. It takes almost a year to develop a completely new watch." (In another shift, Sofisti is also responsible for Gucci's jewelry division, which now comes under the GGW umbrella. The name is likely to be changed to GGW&J.)

Italian-born Sofisti spends much of his time commuting between Switzerland and Italy. It's part of di Marco's plan to make the watch division a closer part of the Gucci world. "Although GGW is based in Switzerland, it's Gucci," di Marco says. "It used to be a separate division a few years ago and then it was absorbed into the company. What we decided to do was a true integration. It has to be very much part of Gucci. It goes beyond logistics or back office or whatever. To me, the important thing is to say that this is one company: a lifestyle brand that goes from the core business, the leather goods, to the shoes, the ready-to-wear, the jewelry and the watches; all this is one brand."

Assembling watches at Gucci's production facility in La Chaux-de-Fonds, Switzerland





A Gucci Watch Chronology

- 1972: Aldo Gucci enters a license deal with Severin Wunderman allowing Wunderman to make and sell watches under the Gucci label.
- 1980s: Wunderman turns Gucci into the world's leading fashion watch. Annual sales at his Gucci Timepieces business grow to exceed \$200 million.
- 1994: Domenico de Sole and Tom Ford take over the management of Gucci. Part of their revival plan is to buy back Gucci licenses.
- 1997: Gucci buys out Severin Wunderman's contract for \$150 million. Gucci sets up its own watch operation, Gucci Group Watches (GGW), in Neuchâtel, Switzerland. Gucci attempts to elevate the brand image. It upgrades the line, doubling and tripling Gucci watch prices.
- 2000-2003: Gucci watch business drops 34 percent, from 215.7 million to 142.1 million euros.
- December 2000: Gucci Group acquires Bédat & Co of Geneva.
- November, 2003: Gucci hires former Richemont Group watch executive Jacques-Philippe Auriol as CEO of GGW. Domenico de Sole and Tom Ford announce that they are leaving Gucci.
- May 2004: Gucci is acquired by French retailer Pinault Printemps Redoute (now called PPR).
- 2004-2005: Auriol executes a strategy to elevate Gucci's image and price points. The Gucci Group restructures its watch holdings with GGW overseeing the Gucci, Bédat, Boucheron and Yves Saint Laurent brands.
- June 2006: Gucci Group announces a reorganization of its watch business. Each brand becomes responsible for its watch business. GGW becomes part of the Gucci brand division under the direction of Gucci CEO Mark Lee. GGW chief Auriol leaves the company.
- 2006: Frida Giannini is named creative director for the Gucci brand.
- February 2009: Gucci Group sells Bédat & Co. to Luxury Concepts Watches & Jewellery, a Malaysia-based brand management company.
- January 1, 2009: Patrizio di Marco is named CEO of Gucci, replacing Mark Lee.
- 2010: Di Marco appoints Michele Sofisti as CEO of Gucci Group Watches, based in Cortaillod, Switzerland. GGW is reorganized to include Gucci's jewelry division.





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PERPHERAL //SION

Carl F. Bucherer made headlines when it used a peripheral rotor in its first in-house movement, Caliber CFB A1001. We test the first watch to use the movement to see how well this rotor works.

BY ALEXANDER LINZ PHOTOS BY OK-PHOTOGRAPHY

Pros

- + Manufacture caliber with unconventional peripheral rotor
- + Elaborate technology for the rotor
- + Easy-to-read indicators
- + Attractive deployant clasp

Cons

- The self-winding mechanism could prove too weak if the wearer is sedentary
- High price



he Carl F. Bucherer Patravi EvoTec DayDate, introduced last year, contains the firm's first *manufacture* movement, Caliber CFB A1001, a self-winding caliber notable for its peripheral rotor. The watch features a subdial for the continually running seconds, an indicator for the day of the week, and a big date display.

Carl F. Bucherer made the decision to develop an in-house movement in 2005 under former CEO Thomas Morf. To that end, the firm acquired in 2007 one of its suppliers, Techniques Horlogères Appliquées SA (THA), an atelier in Sainte-Croix, Switzerland, that specializes in mechanical complications. THA, since renamed Carl F. Bucherer Technologies SA (CFBT), developed the movement.

CFB wanted what it called a "progressive caliber design" that would afford the owner an unobstructed view of the movement's bridges and cocks. This forced the development team to devise something unconventional. A typical, central rotor used in most self-winding movements covers some portion of the movement. Furthermore, it makes installing additional functions difficult. The same holds true for eccentric rotors installed above the plane of the movement. A microrotor, integrated into the plane of the movement, doesn't conceal the movement, but its small dimensions can lead to reduced winding performance. Moreover, a microrotor is necessarily rather heavy, and this extra weight can cause premature wear. Fortunately, a fourth option was available: an oscillating mass orbiting around the periphery of the movement.

A peripheral rotor combines the twin advantages of an unobstructed view of the movement and good winding performance — theoretically, at least. Our test revealed that Caliber CFB A1001 works best when the wearer moves his forearm vigorously. If the wearer's arm motions are very slow, the Bucherer rotor tends to remain stuck in the position where it last came to rest: a certain amount of wrist motion is needed to overcome its lethargy and get it moving. In contrast, a classic central rotor responds better to the pull of gravity in the case of slower arm motion. Michael Bernaschek, a Vienna, Austria-based watchmaker, who assisted us with this test, compared several common winding systems in tests conducted in his workshop. He concluded that "the Bucherer rotor is somewhat lethargic and always needs a small, additional impulse to do its work."

So the question arises: Is the peripheral rotor's winding performance sufficient if the watch is worn by someone who works a desk job? What happens if its wearer doesn't move very much? Says Carl F. Bucherer technical director Albrecht Haake, "I don't see any danger of insufficient winding when this watch is worn by a slow-moving person. In addition to other tests involving the power reserve, the final quality control in Sainte-Croix puts each movement on the Austuto machine, where it is rotated once per minute for four hours. These rotations, and the performance of the automatic-winding mechanism, are sufficient to produce a reserve of power that can keep the watch run-







SCORES

CARL F. BUCHERER PATRAVI EVOTEC DAYDATE

Strap and clasp (max. 10 points):

Well-crafted calfskin strap with plenty of lining and attractive white stitching; the system for the folding clasp makes it unnecessary to pierce holes in the strap, and their absence enhances its appearance.

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Operation (5): The crown fits well between one's fingers; the date and weekday displays can be adjusted when the crown is in its second extracted position, but three to four full turns are required for each increment.

Case (10): The tripartite steel case and its large rubber bezel are well crafted; even the inner surfaces of the lugs are polished.

Design (15): The styling is distinctive and aesthetically pleasing; the contours of the little frame surrounding the seconds subdial echo the case's shape.

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Legibility (5): The sapphire crystal is non-reflective on both its surfaces; luminous material and good contrast between the hands and the dial ensure problem-free legibility of the time, but the tips of the hands can eclipse the date and weekday displays.

Wearing comfort (10): The case's large size and the double-folding clasp detract slightly from the wearing comfort, but this watch nonetheless fits well around the wrist because its strap is affixed low, that is, close to the ends of the downwardly curving lugs.

Movement (20): The architecture of the movement is very beautiful and the three-dimensional decoration is attractive, resulting in a combination of traditional and innovative elements.

Rate results (10): Good average rate, but there were some "rogue" results in the important "dial up" position.

Overall value (15): Although the price for the steel watch on a strap was recently reduced from \$15,900 to \$13,900, it is still expensive for a three-handed watch with day and date indicators.

TOTAL: 82 POINTS

ning for 20 consecutive hours (including the four hours on the winding machine). In our opinion, this test ensures that the watch will not suffer any winding-related problems, even if it's worn by a typical office worker."

FOR ITS ROTOR CONSTRUCTION, Carl F. Bucherer wanted a strong shock-absorption system. It found what it was looking for in a system it calls Dynamic Shock Absorption (DSA): the rotor glides on rollers coated with DLC (diamond-like carbon); these rollers are borne on ball bearings. The bearing-cum-roller subassemblies are mounted on movable rockers precisely positioned by spring arms. An eccentric is used to finely adjust each rocker. The kinetic energy of the oscillating weight is conveyed to the winding mechanism's gear train by a transfer wheel, which is equipped with two Incabloc shock absorbers so that shocks cannot break its staff and it always remains in contact with the rotor. If it takes a very hard hit, the walls of the bridges limit the radial deviations of the oscillating weight and special screws limit the rotor's axial play. This ensures that the rotor can never graze the back of the case.

The design of the caliber is impressive. The architecture offers a wonderfully unblocked view into the depths of the movement, inviting the wearer to enjoy the horological scenery there. CFB A1001 explores new territory, transcending the architecture of classical watch movements. Carl F. Bucherer has created an entirely new language of design, particularly in the area of surface polishing, with its combination of matte, brushed and polished finishes.

The firm has dreamt up something new and exciting for the fine-adjustment mechanism, too: the "Central Dual Adjusting System" or "CDAS" prevents strong shocks from displacing the index and the moveable balance-spring stud bearer. After it has been set, the system can only be manipulated with a specially designed key. Watchmaker Bernaschek considers this a good idea, but notes that systems of this sort have an inherent disadvantage: "Magnetism is the archenemy of every mechanical

The strap is attached to the case at a low point on the lugs, which makes this large watch fit well on the wrist.



TEST Carl F. Bucherer Patravi EvoTec DayDate





EVEN A STICKLER FOR ACCURACY
WOULD BE VERY SATISFIED WITH
THIS WATCH'S SLIGHT GAIN OF A FEW
SECONDS PER DAY.

watch," he says. "If there's a lot of steel in the vicinity of the escapement, the alloy functions like a big magnetism storehouse, which has a deleterious effect on the escapement." Our tested watch had no such problems because (as we do with every watch we test) we demagnetized it before we put it on our electronic timing machine.

THE MACHINE TEST measured satisfactory rate results, both when the watch was fully wound and after 24 hours, without additional inputs of energy to the barrel. Only a rogue result into the minus realm in the "dial down" position detracted from the otherwise positive rate performance. The watch passed the wear test with flying colors. After several days on the wrist of a sedentary wearer seated at his desk, the hands of the Patravi EvoTec DayDate never stopped moving. Even a stickler for accuracy would be very satisfied with a slight gain of a few seconds per day. The wrist test also proved that this watch can do everything it needs to do: the current time is always easy to read thanks to the nonreflective sapphire crystal, as are the big date

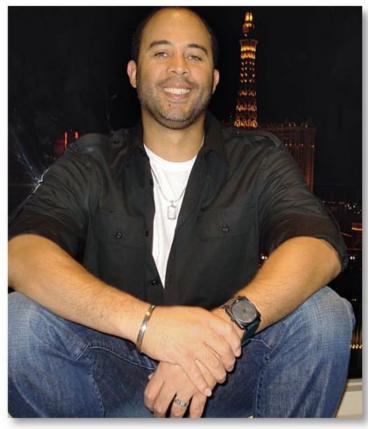


This exploded view shows the teeth on the underside of the caliber's peripheral rotor that mesh with a transfer wheel to power the winding mechanism.

and the day-of-the-week displays, except when they're partly eclipsed by the tips of the watch's hands. The case and its thick rubber bezel are perfectly crafted. Indeed, the tactile experience offered by Carl F. Bucherer watches is a distinct pleasure. Running one's fingertips over this model's case and strap, one feels how excellently crafted it is. The suggested retail price is \$13,900 for the steel version on leather strap and \$35,900 for rose gold. These prices reflect a recent price reduction (down from \$15,900 for the steel on strap version and \$37,500 for the gold model). Nevertheless, the watch is still rather expensive.

Carl F. Bucherer's first manufacture caliber demonstrates that new watch movements can break with tradition. The combination of tried-and-tested solutions (the escapement and the fine-adjustment mechanism) and innovative ideas (the movement's design and the peripheral rotor) whets a connoisseur's appetite for the additional complications that will be added to this caliber. Carl F. Bucherer introduced the second generation of this movement, Caliber CFB A1002, with a power-reserve display, at Baselworld 2010.

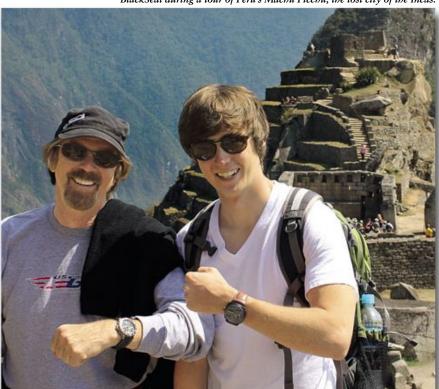




Tracey Coleman, in his Bell & Ross Phantom BR03-92, is ready for his birthday celebration at the Bellagio Hotel on the Las Vegas strip.



Friends attend an Astros vs. Dodgers baseball game in Houston (left to right): Lorena Icabalceta, Cartier Roadster; Danilo Icabalceta, Panerai Luminor Marina Automatic; Terry Gomez, Michele Deco XL; Harold Gomez, Omega Seamaster Planet Ocean



Bill (left) and Dylan Buffalo show off their Sinn 757 UTC and Panerai PAM 183G BlackSeal during a tour of Peru's Machu Picchu, the lost city of the Incas.





Father and son Randy (left) and Steve Melendez display their Breitlings on a bunting trip in the Western Sierras. Randy wears a Chronomat and Steve a Super Avenger.

Army sergeants Aguilar and Torres from Puerto Rico rely on their Casio Pathfinders while undergoing training in Hohenfels, Germany.





Rolex wearers at a social gathering in Drammen, Norway (left to right): Morten Aasboe, Rolex Submariner; Tom Oscar Ovind, Rolex Explorer II; Jan Wilhelm Flytitter Ovind, blue-faced Rolex Submariner



Taking a pizza break at work (left to right): Ray Panillo, in a Rolex President; Rower Calamba, an IWC Automatic Porsche Design; Javier Cabrera, a Festina Chronograph; Carmelo Sison, a vintage Omega Genève

It's a lesson in time for Ken Savidis (right), who sports his Omega Speedmaster Professional Moonphase alongside English teacher Josh Penfold, who wears his TAG Heuer Link Calibre 36.



To submit a photo, please send your image to photo@watchtime.com with a short description identifying each person in the photo and the watch each one is wearing. Please give the first and last name of the wearer and the brand and model of the watch. If the photo was taken at an event, please specify when and where it was held. Only clear images in which both the face of the watch and the wearer are visible will be considered for publication. Images must be in JPEG format and no smaller than 1 MB. Only the best-quality and most interesting photos will be considered.

The Greatest Challenge in Watchmaking'

bout a year ago, at an event in London to launch TAG Heuer's first inhouse chronograph movement, CEO Jean-Christophe Babin found himself in what the Brits call "a spot of bother" (known here as a god-awful mess). Babin created a firestorm of controversy when he unveiled the movement without mentioning that in developing it, TAG Heuer had used intellectual property it had licensed from Japan's Seiko Instruments, Inc.



TAG Heuer's Calibre 1887

The omisbrought howls of execration raining down on Babin. The blogosphere, which, to its credit, discovered the Seiko connection, battered Babin and accused him of deceit. The late Swatch Group

Chairman Nicolas G. Hayek skewered him in the Swiss press and to Babin's LVMH bosses.

A few months later, when the "polemic," as Babin puts it, had died down, I met with him. He admitted having erred by not mentioning the Seiko patents. It was an innocent mistake, he insists. TAG had never discussed patents in any new movement introduction.

I have no interest in reviving the patent issue, which is settled. (The day after the launch, Babin issued a statement on TAG Heuer's Web site acknowledging use of the SII patent. Elsewhere in this issue he explains why and how TAG Heuer used it; see "Newsmaker" on page 68.) I simply want to raise an interesting point about watchmaking that Babin made

during the Calibre 1887 launch that got lost in the ensuing brouhaha.

In our talk, Babin said, "The greatest challenge in watchmaking — I am not talking about some [high] complications like the tourbillon — is the capability to produce high volumes at very high-quality standards, very homogeneously over time, at a very reasonable cost."

His point about the daunting task of engineering a mechanical watch for industrial production, especially a chronograph, is worth a second thought. For years now, the watch world, *WatchTime* included, has hailed the achievements of rock-star watchmakers who create amazing mechanical movements and watches. And rightly so. Daniels, Dufour, Journe and the rest are horological Picassos who make masterpieces. They deserve all the plaudits they get.

Much less fuss, however, is made about the watch industry's much less romantic but equally admirable ability to produce high-quality mechanical movements on an industrial scale. This achievement — and the folks responsible for it deserve more attention than they get. For two reasons. One is that without that skill, there would be no Swiss watch industry. Without the ability to produce high-quality, complex movements in large volumes, the Swiss watch industry would be a series of Swiss Provincetowns, with genius artisans in ateliers sprinkled around Geneva and the Jura, making watches that many would admire but few could afford.

The other reason is that producing large quantities of products with complex mechanical engineering is bloody difficult and should not be taken for granted. Just ask American and Japanese car manufacturers who are plagued by chronic product recalls.

Babin has come to a new appreciation of all of this over the course of his decade

at TAG Heuer's helm. He came to TAG from the detergents business in 2000. In those days, TAG Heuer was a quartz watch brand and the firm relied completely on outside suppliers for movements. Under Babin, TAG Heuer has shifted production to mechanical watches (more than half of TAG's output is mechanical now) and set out to make its own chronograph movement to meet its growing demand. It's that experience that leads him to call making high-volume, high-quality mechanical movements at a reasonable price the toughest task in watchmaking. Particularly mechanical chronograph movements like Calibre 1887. Fewer than 10 watch brands, including Seiko, make their own chronograph movement.

The poster brand for this achievement is Rolex, of course. In some watch circles, Rolex watches are dismissed as "mass class." In others, though, the ability to manufacture more than 7 million (7,080,518 to be exact) certified chronometer watches over the past decade, as Rolex did, is awe-inspiring. Babin and I didn't talk about Rolex, but he is clearly in the latter group. (My hunch is that the top brass at Breitling and Hublot, which recently developed their own in-house chronograph movements, are, too.)

The SII controversy interfered with Babin's effort to tell the Calibre 1887 "industrialization process" story, of how TAG adapted the movement and developed new production techniques, like dry milling and laser-controlled jewel setting. "We imagined a manufacturing process that would create the most reliable and cost-efficient chronograph movement in the industry," he says. He'll get a second chance to make a fuss about watchmaking's greatest challenge when the first Carrera Calibre 1887 watches arrive in the U.S. next spring.





Water-resistant to 100 m. Rubber band.



new movado master™ chronograph. fine swiss automatic movement. stainless steel case with black sapphire crystal bezel. black rubber deployment strap. movado rockefeller center and select retailers nationwide. movado.com